

U.S. Army Corps of Engineers

Kansas City District



Specifications for Operable Unit 2 - Building Demolition

**Cornell-Dubilier Electronics Superfund Site
South Plainfield, NJ**

**USACE Contract No. W912DQ-06-D-0006
Task Order No. 0001**

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Cornell-Dubilier
Electronics Superfund Site OU2
Middlesex County, New Jersey

Bid Schedules

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Cost</u>	<u>Total</u>
<u>Cluster 1</u>					
C1-001	Work Plans	<u>L.S.</u>	<i><u>Addressed Under Earlier USACE Task Order</u></i>		
C1-002	General Conditions	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C1-003	Asbestos Abatement	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C1-004	Above Grade Structure Demolition And Off-Site Disposal	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C1-005	Below-Grade Structure Demolition And Off-Site Disposal	<u>Tons</u>	<u>50</u>	<u> </u>	<u> </u>
C1-006	Removal and Disposal of PCB and/or Mercury Contaminated Ballasts, Switches, and Bulbs as Shown on Drawings	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C1-007	Demolition, Handling/Stockpiling, Sampling, and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>2,520</u>	<u> </u>	<u> </u>
C1-008	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>2,140</u>	<u> </u>	<u> </u>
C1-009	Excavation, Handling/Stockpiling, Sampling and On-Site Reuse of Non-Hazardous Excavated Soil	<u>C.Y.</u>	<u>50</u>	<u> </u>	<u> </u>
C1-010	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of Non-Hazardous Excavated Soil	<u>Tons</u>	<u>70</u>	<u> </u>	<u> </u>
C1-011	Controlled Low Strength Material	<u>C.Y.</u>	<u>50</u>	<u> </u>	<u> </u>
C1-012	Dense Graded Aggregate	<u>Tons</u>	<u>9,750</u>	<u> </u>	<u> </u>
C1-013	Bituminous Surface Coarse	<u>S.Y.</u>	<u>7,310</u>	<u> </u>	<u> </u>
C1-014	Geotextile	<u>S.F</u>	<u>65,780</u>	<u> </u>	<u> </u>
C1-015	Water Handling, Temporary Storage, and Off-Site Disposal	<u>LS</u>	<u>1</u>	<u> </u>	<u> </u>
Subtotal Cluster 1					<u> </u>

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Bid Schedules

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Cost</u>	<u>Total</u>
<u>Cluster 2</u>					
C2-001	Work Plans	<u>L.S.</u>	<i><u>Addressed Under Earlier USACE Task Order</u></i>		
C2-002	General Conditions	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C2-003	Asbestos Abatement	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C2-004	Above Grade Structure Demolition And Off-Site Disposal	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C2-005	Below-Grade Structure Demolition And Off-Site Disposal	<u>Tons</u>	<u>60</u>	<u> </u>	<u> </u>
C2-006	Removal and Disposal of PCB and/or Mercury Contaminated Ballasts, Switches, and Bulbs as Shown on Drawings	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C2-007	Demolition, Handling/Stockpiling, Sampling, and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>2,050</u>	<u> </u>	<u> </u>
C2-008	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>2,270</u>	<u> </u>	<u> </u>
C2-009	Excavation, Handling/Stockpiling, Sampling and On-Site Reuse of Non-Hazardous Excavated Soil	<u>C.Y.</u>	<u>60</u>	<u> </u>	<u> </u>
C2-010	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of Non-Hazardous Excavated Soil	<u>Tons</u>	<u>90</u>	<u> </u>	<u> </u>
C2-011	Controlled Low Strength Material	<u>C.Y.</u>	<u>50</u>	<u> </u>	<u> </u>
C2-012	Dense Graded Aggregate	<u>Tons</u>	<u>12,160</u>	<u> </u>	<u> </u>
C2-013	Bituminous Surface Coarse	<u>S.Y.</u>	<u>9,220</u>	<u> </u>	<u> </u>
C2-014	Geotextile	<u>S.F</u>	<u>82,900</u>	<u> </u>	<u> </u>
C2-015	Water Handling, Temporary Storage, and Off-Site Disposal	<u>LS</u>	<u>1</u>	<u> </u>	<u> </u>
Subtotal Cluster 2					<u> </u>

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Bid Schedules

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Cost</u>	<u>Total</u>
<u>Cluster 3</u>					
C3-001	Work Plans	<u>L.S.</u>	<i><u>Addressed Under Earlier USACE Task Order</u></i>		
C3-002	General Conditions	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C3-003	Asbestos Abatement	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C3-004	Above Grade Structure Demolition And Off-Site Disposal	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C3-005	Below-Grade Structure Demolition And Off-Site Disposal	<u>Tons</u>	<u>80</u>	<u> </u>	<u> </u>
C3-006	Removal and Disposal of PCB and/or Mercury Contaminated Ballasts, Switches, and Bulbs as Shown on Drawings	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C3-007	Demolition, Handling/Stockpiling, Sampling, and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>2,230</u>	<u> </u>	<u> </u>
C3-008	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>1,240</u>	<u> </u>	<u> </u>
C3-009	Excavation, Handling/Stockpiling, Sampling and On-Site Reuse of Non-Hazardous Excavated Soil	<u>C.Y.</u>	<u>80</u>	<u> </u>	<u> </u>
C3-010	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of Non-Hazardous Excavated Soil	<u>Tons</u>	<u>120</u>	<u> </u>	<u> </u>
C3-011	Controlled Low Strength Material	<u>C.Y.</u>	<u>50</u>	<u> </u>	<u> </u>
C3-012	Dense Graded Aggregate	<u>Tons</u>	<u>7,560</u>	<u> </u>	<u> </u>
C3-013	Bituminous Surface Coarse	<u>S.Y.</u>	<u>5,890</u>	<u> </u>	<u> </u>
C3-014	Geotextile	<u>S.F</u>	<u>52,920</u>	<u> </u>	<u> </u>
C3-015	Water Handling, Temporary Storage, and Off-Site Disposal	<u>LS</u>	<u>1</u>	<u> </u>	<u> </u>
Subtotal Cluster 3					<u> </u>

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Bid Schedules

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Cost</u>	<u>Total</u>
<u>Cluster 4</u>					
C4-001	Work Plans	<u>L.S.</u>	<i><u>Addressed Under Earlier USACE Task Order</u></i>		
C4-002	General Conditions	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C4-003	Asbestos Abatement	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C4-004	Above Grade Structure Demolition And Off-Site Disposal	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C4-005	Below-Grade Structure Demolition And Off-Site Disposal	<u>Tons</u>	<u>10</u>	<u> </u>	<u> </u>
C4-006	Removal and Disposal of PCB and/or Mercury Contaminated Ballasts, Switches, and Bulbs as Shown on Drawings	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C4-007	Demolition, Handling/Stockpiling, Sampling, and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>270</u>	<u> </u>	<u> </u>
C4-008	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>790</u>	<u> </u>	<u> </u>
C4-009	Excavation, Handling/Stockpiling, Sampling and On-Site Reuse of Non-Hazardous Excavated Soil	<u>C.Y.</u>	<u>10</u>	<u> </u>	<u> </u>
C4-010	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of Non-Hazardous Excavated Soil	<u>Tons</u>	<u>10</u>	<u> </u>	<u> </u>
C4-011	Controlled Low Strength Material	<u>C.Y.</u>	<u>50</u>	<u> </u>	<u> </u>
C4-012	Dense Graded Aggregate	<u>Tons</u>	<u>2,960</u>	<u> </u>	<u> </u>
C4-013	Bituminous Surface Coarse	<u>S.Y.</u>	<u>1,970</u>	<u> </u>	<u> </u>
C4-014	Geotextile	<u>S.F</u>	<u>17,730</u>	<u> </u>	<u> </u>
C4-015	Water Handling, Temporary Storage, and Off-Site Disposal	<u>LS</u>	<u>1</u>	<u> </u>	<u> </u>
Subtotal Cluster 4					<u> </u>

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<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Cost</u>	<u>Total</u>
<u>Cluster 5</u>					
C5-001	Work Plans	<u>L.S.</u>	<i><u>Addressed Under Earlier USACE Task Order</u></i>		
C5-002	General Conditions	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C5-003	Asbestos Abatement	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C5-004	Above Grade Structure Demolition And Off-Site Disposal	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C5-005	Below-Grade Structure Demolition And Off-Site Disposal	<u>Tons</u>	<u>10</u>	<u> </u>	<u> </u>
C5-006	Removal and Disposal of PCB and/or Mercury Contaminated Ballasts, Switches, and Bulbs as Shown on Drawings	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C5-007	Demolition, Handling/Stockpiling, Sampling, and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>1,640</u>	<u> </u>	<u> </u>
C5-008	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>2,050</u>	<u> </u>	<u> </u>
C5-009	Excavation, Handling/Stockpiling, Sampling and On-Site Reuse of Non-Hazardous Excavated Soil	<u>C.Y.</u>	<u>10</u>	<u> </u>	<u> </u>
C5-010	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of Non-Hazardous Excavated Soil	<u>Tons</u>	<u>10</u>	<u> </u>	<u> </u>
C5-011	Controlled Low Strength Material	<u>C.Y.</u>	<u>50</u>	<u> </u>	<u> </u>
C5-012	Dense Graded Aggregate	<u>Tons</u>	<u>8,740</u>	<u> </u>	<u> </u>
C5-013	Bituminous Surface Coarse	<u>S.Y.</u>	<u>6,290</u>	<u> </u>	<u> </u>
C5-014	Geotextile	<u>S.F</u>	<u>56,580</u>	<u> </u>	<u> </u>
C5-015	Water Handling, Temporary Storage, and Off-Site Disposal	<u>LS</u>	<u>1</u>	<u> </u>	<u> </u>
Subtotal Cluster 5					<u> </u>

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<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Cost</u>	<u>Total</u>
<u>Cluster 6</u>					
C6-001	Work Plans	<u>L.S.</u>	<i><u>Addressed Under Earlier USACE Task Order</u></i>		
C6-002	General Conditions	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C6-003	Asbestos Abatement	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C6-004	Above Grade Structure Demolition And Off-Site Disposal	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C6-005	Below-Grade Structure Demolition And Off-Site Disposal	<u>Tons</u>	<u>10</u>	<u> </u>	<u> </u>
C6-006	Removal and Disposal of PCB and/or Mercury Contaminated Ballasts, Switches, and Bulbs as Shown on Drawings	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C6-007	Demolition, Handling/Stockpiling, Sampling, and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>280</u>	<u> </u>	<u> </u>
C6-008	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>830</u>	<u> </u>	<u> </u>
C6-009	Excavation, Handling/Stockpiling, Sampling and On-Site Reuse of Non-Hazardous Excavated Soil	<u>C.Y.</u>	<u>10</u>	<u> </u>	<u> </u>
C6-010	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of Non-Hazardous Excavated Soil	<u>Tons</u>	<u>10</u>	<u> </u>	<u> </u>
C6-011	Controlled Low Strength Material	<u>C.Y.</u>	<u>50</u>	<u> </u>	<u> </u>
C6-012	Dense Graded Aggregate	<u>Tons</u>	<u>2,030</u>	<u> </u>	<u> </u>
C6-013	Bituminous Surface Coarse	<u>S.Y.</u>	<u>1,240</u>	<u> </u>	<u> </u>
C6-014	Geotextile	<u>S.F</u>	<u>11,080</u>	<u> </u>	<u> </u>
C6-015	Water Handling, Temporary Storage, and Off-Site Disposal	<u>LS</u>	<u>1</u>	<u> </u>	<u> </u>
Subtotal Cluster 6					<u> </u>

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<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Cost</u>	<u>Total</u>
<u>Cluster 7</u>					
C7-001	Work Plans	<u>L.S.</u>	<i><u>Addressed Under Earlier USACE Task Order</u></i>		
C7-002	General Conditions	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C7-003	Asbestos Abatement	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C7-004	Above Grade Structure Demolition And Off-Site Disposal	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C7-005	Below-Grade Structure Demolition And Off-Site Disposal	<u>Tons</u>	<u>10</u>	<u> </u>	<u> </u>
C7-006	Removal and Disposal of PCB and/or Mercury Contaminated Ballasts, Switches, and Bulbs as Shown on Drawings	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C7-007	Demolition, Handling/Stockpiling, Sampling, and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>710</u>	<u> </u>	<u> </u>
C7-008	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>1,550</u>	<u> </u>	<u> </u>
C7-009	Excavation, Handling/Stockpiling, Sampling and On-Site Reuse of Non-Hazardous Excavated Soil	<u>C.Y.</u>	<u>10</u>	<u> </u>	<u> </u>
C1-010	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of Non-Hazardous Excavated Soil	<u>Tons</u>	<u>10</u>	<u> </u>	<u> </u>
C7-011	Controlled Low Strength Material	<u>C.Y.</u>	<u>50</u>	<u> </u>	<u> </u>
C7-012	Dense Graded Aggregate	<u>Tons</u>	<u>4,750</u>	<u> </u>	<u> </u>
C7-013	Bituminous Surface Coarse	<u>S.Y.</u>	<u>2,990</u>	<u> </u>	<u> </u>
C7-014	Geotextile	<u>S.F</u>	<u>26,840</u>	<u> </u>	<u> </u>
C7-015	Water Handling, Temporary Storage, and Off-Site Disposal	<u>LS</u>	<u>1</u>	<u> </u>	<u> </u>
Subtotal Cluster 7					<u> </u>

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<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Cost</u>	<u>Total</u>
<u>Cluster 8</u>					
C8-001	Work Plans	<u>L.S.</u>	<i><u>Addressed Under Earlier USACE Task Order</u></i>		
C8-002	General Conditions	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C8-003	Asbestos Abatement	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C8-004	Above Grade Structure Demolition And Off-Site Disposal	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C8-005	Below-Grade Structure Demolition And Off-Site Disposal	<u>Tons</u>	<u>1,760</u>	<u> </u>	<u> </u>
C8-006	Removal and Disposal of PCB and/or Mercury Contaminated Ballasts, Switches, and Bulbs as Shown on Drawings	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C8-007	Demolition, Handling/Stockpiling, Sampling, and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>930</u>	<u> </u>	<u> </u>
C8-008	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>1,300</u>	<u> </u>	<u> </u>
C8-009	Excavation, Handling/Stockpiling, Sampling and On-Site Reuse of Non-Hazardous Excavated Soil	<u>C.Y.</u>	<u>90</u>	<u> </u>	<u> </u>
C8-010	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of Non-Hazardous Excavated Soil	<u>Tons</u>	<u>140</u>	<u> </u>	<u> </u>
C8-011	Controlled Low Strength Material	<u>C.Y.</u>	<u>50</u>	<u> </u>	<u> </u>
C8-012	Dense Graded Aggregate	<u>Tons</u>	<u>11,890</u>	<u> </u>	<u> </u>
C8-013	Bituminous Surface Coarse	<u>S.Y.</u>	<u>2,430</u>	<u> </u>	<u> </u>
C8-014	Geotextile	<u>S.F</u>	<u>21,800</u>	<u> </u>	<u> </u>
C8-015	Water Handling, Temporary Storage, and Off-Site Disposal	<u>LS</u>	<u>1</u>	<u> </u>	<u> </u>
Subtotal Cluster 8					<u> </u>

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Electronics Superfund Site OU2
Middlesex County, New Jersey

Bid Schedules

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Cost</u>	<u>Total</u>
<u>Cluster 9</u>					
C9-001	Work Plans	<u>L.S.</u>	<i><u>Addressed Under Earlier USACE Task Order</u></i>		
C9-002	General Conditions	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C9-003	Asbestos Abatement	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C9-004	Above Grade Structure Demolition And Off-Site Disposal	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C9-005	Below-Grade Structure Demolition And Off-Site Disposal	<u>Tons</u>	<u>10</u>	<u> </u>	<u> </u>
C9-006	Removal and Disposal of PCB and/or Mercury Contaminated Ballasts, Switches, and Bulbs as Shown on Drawings	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C9-007	Demolition, Handling/Stockpiling, Sampling, and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>110</u>	<u> </u>	<u> </u>
C9-008	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>330</u>	<u> </u>	<u> </u>
C9-009	Excavation, Handling/Stockpiling, Sampling and On-Site Reuse of Non-Hazardous Excavated Soil	<u>C.Y.</u>	<u>10</u>	<u> </u>	<u> </u>
C9-010	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of Non-Hazardous Excavated Soil	<u>Tons</u>	<u>10</u>	<u> </u>	<u> </u>
C9-011	Controlled Low Strength Material	<u>C.Y.</u>	<u>100</u>	<u> </u>	<u> </u>
C9-012	Dense Graded Aggregate	<u>Tons</u>	<u>760</u>	<u> </u>	<u> </u>
C9-013	Bituminous Surface Coarse	<u>S.Y.</u>	<u>460</u>	<u> </u>	<u> </u>
C9-014	Geotextile	<u>S.F</u>	<u>4,090</u>	<u> </u>	<u> </u>
C9-015	Water Handling, Temporary Storage, and Off-Site Disposal	<u>LS</u>	<u>1</u>	<u> </u>	<u> </u>
Subtotal Cluster 9					<u> </u>

Cornell-Dubilier
Electronics Superfund Site OU2
Middlesex County, New Jersey

Bid Schedules

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Cost</u>	<u>Total</u>
<u>Cluster 10</u>					
C10-001	Work Plans	<u>L.S.</u>	<i><u>Addressed Under Earlier USACE Task Order</u></i>		
C10-002	General Conditions	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C10-003	Asbestos Abatement	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C10-004	Above Grade Structure Demolition And Off-Site Disposal	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C10-005	Below-Grade Structure Demolition And Off-Site Disposal	<u>Tons</u>	<u>10</u>	<u> </u>	<u> </u>
C10-006	Removal and Disposal of PCB and/or Mercury Contaminated Ballasts, Switches, and Bulbs as Shown on Drawings	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C10-007	Demolition, Handling/Stockpiling, Sampling, and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>30</u>	<u> </u>	<u> </u>
C10-008	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>260</u>	<u> </u>	<u> </u>
C10-009	Excavation, Handling/Stockpiling, Sampling and On-Site Reuse of Non-Hazardous Excavated Soil	<u>C.Y.</u>	<u>10</u>	<u> </u>	<u> </u>
C10-010	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of Non-Hazardous Excavated Soil	<u>Tons</u>	<u>10</u>	<u> </u>	<u> </u>
C10-011	Controlled Low Strength Material	<u>C.Y.</u>	<u>50</u>	<u> </u>	<u> </u>
C10-012	Dense Graded Aggregate	<u>Tons</u>	<u>490</u>	<u> </u>	<u> </u>
C10-013	Bituminous Surface Coarse	<u>S.Y.</u>	<u>220</u>	<u> </u>	<u> </u>
C10-014	Geotextile	<u>S.F</u>	<u>1,970</u>	<u> </u>	<u> </u>
C10-015	Water Handling, Temporary Storage, and Off-Site Disposal	<u>LS</u>	<u>1</u>	<u> </u>	<u> </u>
Subtotal Cluster 10					<u> </u>

Cornell-Dubilier
Electronics Superfund Site OU2
Middlesex County, New Jersey

Bid Schedules

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Cost</u>	<u>Total</u>
<u>Cluster 11</u>					
C11-001	Work Plans	<u>L.S.</u>	<i><u>Addressed Under Earlier USACE Task Order</u></i>		
C11-002	General Conditions	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C11-003	Asbestos Abatement	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C11-004	Above Grade Structure Demolition And Off-Site Disposal	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C11-005	Below-Grade Structure Demolition And Off-Site Disposal	<u>Tons</u>	<u>10</u>	<u> </u>	<u> </u>
C11-006	Removal and Disposal of PCB and/or Mercury Contaminated Ballasts, Switches, and Bulbs as Shown on Drawings	<u>L.S.</u>	<u>1</u>	<u> </u>	<u> </u>
C11-007	Demolition, Handling/Stockpiling, Sampling, and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>120</u>	<u> </u>	<u> </u>
C11-008	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>360</u>	<u> </u>	<u> </u>
C11-009	Excavation, Handling/Stockpiling, Sampling and On-Site Reuse of Non-Hazardous Excavated Soil	<u>C.Y.</u>	<u>10</u>	<u> </u>	<u> </u>
C11-010	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of Non-Hazardous Excavated Soil	<u>Tons</u>	<u>10</u>	<u> </u>	<u> </u>
C11-011	Controlled Low Strength Material	<u>C.Y.</u>	<u>50</u>	<u> </u>	<u> </u>
C11-012	Dense Graded Aggregate	<u>Tons</u>	<u>1,170</u>	<u> </u>	<u> </u>
C11-013	Bituminous Surface Coarse	<u>S.Y.</u>	<u>970</u>	<u> </u>	<u> </u>
C11-014	Geotextile	<u>S.F</u>	<u>8,670</u>	<u> </u>	<u> </u>
C11-015	Water Handling, Temporary Storage, and Off-Site Disposal	<u>LS</u>	<u>1</u>	<u> </u>	<u> </u>
Subtotal Cluster 11					<u> </u>

Cornell-Dubilier
Electronics Superfund Site OU2
Middlesex County, New Jersey

Bid Schedules

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Cost</u>	<u>Total</u>
<u>Cluster 12</u>					
C12-001	Work Plans	<u>L.S.</u>	<u>Addressed Under Earlier USACE Task Order</u>		
C12-002	General Conditions	<u>L.S.</u>	<u>Addressed Under Earlier USACE Task Order</u>		
C12-003	Asbestos Abatement	<u>L.S.</u>	<u>Addressed Under Earlier USACE Task Order</u>		
C12-004	Above Grade Structure Demolition And Off-Site Disposal	<u>L.S.</u>	<u>Addressed Under Earlier USACE Task Order</u>		
C12-005	Below-Grade Structure Demolition And Off-Site Disposal	<u>Tons</u>	<u>Addressed Under Earlier USACE Task Order</u>		
C12-006	Removal and Disposal of PCB and/or Mercury Contaminated Ballasts, Switches, and Bulbs as Shown on Drawings	<u>L.S.</u>	<u>Addressed Under Earlier USACE Task Order</u>		
C12-007	Demolition, Handling/Stockpiling, Sampling, and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>Addressed Under Earlier USACE Task Order</u>		
C12-008	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of TSCA Waste > 50 ppm	<u>Tons</u>	<u>Addressed Under Earlier USACE Task Order</u>		
C12-009	Excavation, Handling/Stockpiling, Sampling and On-Site Reuse of Non-Hazardous Excavated Soil	<u>C.Y.</u>	<u>Addressed Under Earlier USACE Task Order</u>		
C12-010	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of Non-Hazardous Excavated Soil	<u>Tons</u>	<u>Addressed Under Earlier USACE Task Order</u>		
C12-011	Controlled Low Strength Material	<u>C.Y.</u>	<u>Addressed Under Earlier USACE Task Order</u>		
C12-012	Dense Graded Aggregate	<u>Tons</u>	<u>Addressed Under Earlier USACE Task Order</u>		
C12-013	Bituminous Surface Coarse	<u>S.Y.</u>	<u>Addressed Under Earlier USACE Task Order</u>		
C12-014	Geotextile	<u>S.F</u>	<u>Addressed Under Earlier USACE Task Order</u>		
C12-015	Water Handling, Temporary Storage, and Off-Site Disposal	<u>LS</u>	<u>Addressed Under Earlier USACE Task Order</u>		

Subtotal Cluster 12

Cornell-Dubilier
Electronics Superfund Site OU2
Middlesex County, New Jersey

Bid Schedules

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Cost</u>	<u>Total</u>
<u>Supplementary Schedule</u>					
S-001	Removal and Relocation or Disposal of Furnishings and Trash/Debris	<u>Allowance</u>	<u>1</u>	<u>\$100,000</u>	<u>\$100,000</u>
S-002	Removal and Disposal of Underground Storage Tanks and Contents (5,000 gallons or less)	<u>Ea</u>	<u>5</u>	<u> </u>	<u> </u>
S-003	Removal and Disposal of Hazardous Wood Flooring Blocks	<u>Tons</u>	<u>60</u>	<u> </u>	<u> </u>
S-004	Demolition, Handling/Stockpiling, Sampling and Off-Site Disposal of RCRA Waste (Failing TCLP)	<u>Tons</u>	<u>1,110</u>	<u> </u>	<u> </u>
S-005	Demolition, Handling/Stockpiling, Sampling and Off-Site Disposal of Mixed Waste – Both TSCA and RCRA (TSCA > 50ppm)	<u>Tons</u>	<u>1,110</u>	<u> </u>	<u> </u>
S-006	Excavation, Handling/Stockpiling, Sampling and Off-Site Treatment and Disposal of TSCA Waste > 500 ppm	<u>Tons</u>	<u>670</u>	<u> </u>	<u> </u>
S-007	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of RCRA Waste (Failing TCLP)	<u>Tons</u>	<u>670</u>	<u> </u>	<u> </u>
S-008	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of Mixed Waste – Both TSCA and RCRA (TSCA >50ppm, < 500ppm)	<u>Tons</u>	<u>670</u>	<u> </u>	<u> </u>
S-009	Excavation, Handling/Stockpiling, Sampling and Off-Site Disposal of Mixed Waste – Both TSCA and RCRA (TSCA > 500ppm)	<u>Tons</u>	<u>670</u>	<u> </u>	<u> </u>
S-010	General Utility Management	<u>Allowance</u>	<u>1</u>	<u>\$300,000</u>	<u>\$300,000</u>

Cornell-Dubilier
Electronics Superfund Site OU2
Middlesex County, New Jersey

Bid Schedules

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Cost</u>	<u>Total</u>
S-011	Geophysical Survey Scan Around Buildings	<u>LS</u>	<u>1</u>	<u> </u>	<u> </u>
S-012	Additional Asbestos Abatement	<u>Allowance</u>	<u>1</u>	<u>\$140,000</u>	<u>\$140,000</u>
S-013	Temporary Facilities	<u>Months</u>	<u>24</u>	<u> </u>	<u> </u>
S-014	Air Monitoring	<u>Months</u>	<u>24</u>	<u> </u>	<u> </u>
Subtotal Supplemental Schedule					<u> </u>

DOCUMENT 00102

LIST OF DRAWINGS

PART 1 GENERAL

1.1 SUMMARY

This document lists the drawings for the project pursuant to contract clause "DFARS 252.236-7001, Contract Drawings, Maps and Specifications."

1.2 CONTRACT DRAWINGS

Contract drawings are as follows:

DRAWING NO.	REVISION NO.	TITLE
G-01	-	Cover Sheet
G-02	-	Index of Drawings, Legend, Abbreviations
G-03	-	Site Plan/Cluster Designations
G-04	-	Cluster 1-BLDG'S 1, 1A, 1B, 1C, 1D, 6 Plan And Elevations
G-05	-	Cluster 1-BLDG'S 1, 1A, 1B Miscellaneous Waste
G-06	-	Cluster 1-BLDG'S 1C, 1D, 6 Miscellaneous Waste
G-07	-	Cluster 1-PCB Remediation Waste Floors and Walls
G-08	-	Cluster 1-BLDG'S 1, 1A, 1B, 1C, 1D, 6 Photographs
G-09	-	Cluster 2-BLDG'S 2, 2A, 3/4, 4A Plan And Elevations
G-10	-	Cluster 2-BLDG'S 2, 2A, 3/4 Miscellaneous Waste
G-11	-	Cluster 2-BLDG 4A Miscellaneous Waste
G-12	-	Cluster 2-PCB Remediation Waste Floors and Walls
G-13	-	Cluster 2-BLDG'S 2, 2A, 3/4, 4A Photographs
G-14	-	Cluster 3-BLDG'S 5, 5A Plan And Elevations
G-15	-	Cluster 3-BLDG'S 5, 5A Miscellaneous Waste
G-16	-	Cluster 3-PCB Remediation Waste Floors and Walls
G-17	-	Cluster 3-BLDG'S 5, 5A Photographs
G-18	-	Cluster 4-BLDG 8 Plan And Elevations
G-19	-	Cluster 4-BLDG 8 Miscellaneous Waste
G-20	-	Cluster 4-BLDG 8 Photographs
G-21	-	Cluster 5-BLDG'S 9, 9A, 9B, 9C, 17 Plan And Elevations
G-22	-	Cluster 5-BLDG'S 9, 9A Miscellaneous Waste
G-23	-	Cluster 5-BLDG'S 9B, 9C, 17 Miscellaneous Waste
G-24	-	Cluster 5-PCB Remediation Waste Floors and Walls
G-25	-	Cluster 5-BLDG'S 9, 9A, 9B, 9C, 17 Photographs
G-26	-	Cluster 6-BLDG'S 10, 10A Plan And Elevations
G-27	-	Cluster 6-BLDG 10 Miscellaneous Waste
G-28	-	Cluster 6-PCB Remediation Waste Floors and Walls
G-29	-	Cluster 6-BLDG'S 10, 10A Photographs
G-30	-	Cluster 7-BLDG'S 11, 12 Plan And Elevations
G-31	-	Cluster 7-BLDG'S 11, 12 Miscellaneous Waste
G-32	-	Cluster 7-PCB Remediation Waste Floors and Walls
G-33	-	Cluster 7-BLDG'S 11, 12 Photographs
G-34	-	Cluster 8-BLDG 13 Plan And Elevations
G-35	-	Cluster 8-BLDG 13 Miscellaneous Waste
G-36	-	Cluster 8-RCRA Hazardous Masonry Walls

DRAWING NO.	REVISION NO.	TITLE
G-37	-	Cluster 8-15,16,18 Plan Elevations
G-38	-	Cluster 8-15,16,18 Miscellaneous Waste
G-39	-	Cluster 8-RCRA Hazardous Masonry Walls
G-40	-	Cluster 8-BLDG'S 13,15,16,18 Photographs
G-41	-	Cluster 9-BLDG 7 Plan And Elevations
G-42	-	Cluster 9-BLDG 7 Miscellaneous Waste
G-43	-	Cluster 9-BLDG 7 Photographs
G-44	-	Cluster 10-Water Tower Plan And Elevations
G-45	-	Cluster 10-Water Tower Miscellaneous Waste
G-46	-	Cluster 10-Water Tower Photographs
G-47	-	Cluster 11-BLDG 14 Plan And Elevations
G-48	-	Cluster 11-BLDG 14 Plan Miscellaneous Waste
G-49	-	Cluster 11-BLDG 14 Photographs
G-50	-	Cluster 12-Oil Tank Plan And Elevations
G-51	-	Cluster 12-Oil Tank Miscellaneous Waste
G-52	-	Cluster 12-Oil Tank Photographs
G-53	-	Site Utility Plan
G-54	-	Site Details 1
G-55	-	Site Details 2

1.3 SUPPLEMENTARY DRAWINGS

These supplementary drawings may not be a part of the contract but are included with the drawings for information.

1.3.1 Reference Drawing

The following reference drawing is available from the Contracting Officer intended only to show site conditions in December 1956. Drawing is the property of the Government and shall not be used for any purpose other than that intended by the contract.

DRAWING NO.	TITLE
4740	Cornell-Dubilier Electronics Corp, Et. Al, Prepared by Factory Insurance Association, Easter Regional Office South Plainfield, NJ Dated 03/17/1954 Updated December 18, 1956

1.3.2 Boring Logs/Subsurface Data

The Government does not guarantee that borings indicate actual conditions, except for the exact locations and the time that they were made as part of the Remedial Investigation Report.

1.3.3 Subsurface Data

Subsurface data, not specified or indicated, have been obtained by the Government at the station. The data are available for examination by prospective bidders as part of the Remedial Investigation Report.

-- End of Document --

SECTION 01110

SUMMARY OF WORK

PART 1 GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

1.1.1 Project Description

Provide all labor, materials, equipment, site management, home office support, and incidental items necessary to accomplish performance requirements for the Remedial Action (RA) at the Cornell-Dubilier Electronics Superfund Site, Operable Unit 02 (OU-2), in the Borough of South Plainfield, Middlesex County, New Jersey. The Cornell-Dubilier Electronics Site is on the National Priorities List due to contamination found in the soil and building materials.

Work includes demolition of structures; transportation of all waste and offsite disposal of all waste including demolition debris and soil resulting from demolition; restoration with backfill and pavement; sampling and analysis of soil, water, air and building material; and other activities necessary for complete and proper demolition of the site. A more complete description is covered in the scope of work, below.

The Site remediation was separated into multiple Operable Units. Operable Unit-1 (OU-1) consists of the residential, commercial, and municipal properties in the vicinity of the former Cornell-Dubilier Electronics facility and is being addressed by others. OU-2 consists of contaminated facility site soils and buildings. The groundwater and sediments in the adjacent Bound Brook will be addressed by the USEPA as part of future Operable Units. The remedial action selected in the Record of Decision (ROD) dated September 2004 for OU-2 buildings includes:

- a. The demolition of the 18 subdivided on-site buildings;
- b. Transportation of the building debris off-site for disposal, with treatment as necessary; and
- c. Relocation of eligible tenants at the former Cornell-Dubilier facility buildings pursuant to the Uniform Relocation Act, as necessary. The Contracting Officer will coordinate all relocation efforts. Although relocation is not included in the Contract, the Contractor's work shall not impede relocation efforts.

1.1.2 Information Resources

The following information resources are listed for information purposes only.

Feasibility Study for Operable Unit 2 (OU-2) Facility Soils and Buildings, Tetra Tech-Foster Wheeler, Inc., April 2004;

Record of Decision, Cornell-Dubilier Electronics Superfund Site, South Plainfield, New Jersey, United States Environmental Protection Agency, Region II, September 2004;

Final Remedial Investigation Report for Operable Unit 2 (OU-2) On-Site Soils and Buildings - Volume I and II, Tetra Tech-Foster Wheeler, Inc., December 2002;

Final Buildings Field Sample Plan, Malcolm Pirnie, Inc., February 2006;

Final Buildings Quality Assurance Project Plan, Malcolm Pirnie, Inc., March 2006;

Final Buildings Site Safety and Health Plan, Malcolm Pirnie, Inc., March 2006;

Draft Data Summary Report, Malcolm Pirnie, Inc., June 2006; and

Draft Demolition Design Report, Malcolm Pirnie, Inc., June 2006.

1.1.3 Location

The Cornell-Dubilier Electronics Superfund Site (the Site) is located at 333 Hamilton Boulevard in the Borough of South Plainfield, Middlesex County, New Jersey as shown in the drawings. The Site consists of approximately 26 acres including the Hamilton Industrial Park, contaminated portions of the Bound Brook adjacent to and downstream of the industrial park, and contaminated residential, municipal, and commercial properties in the vicinity of the former Cornell-Dubilier Electronics Corporation, Inc. (Cornell-Dubilier Electronics) facility. The Site contains numerous subdivided buildings, numbered 1 through 18, some of which are currently used by several commercial and light industrial operations. Site buildings are shown on the drawings. The Site is bounded by the Lehigh Valley Railroad to the northeast, Factory Street to the southeast, Spicer Avenue to the southwest, and by Hamilton Boulevard. The area is a busy, heavily developed mixed use neighborhood.

The developed portion of the facility (the northwestern portion) comprises approximately 45 percent of the total land area and contains buildings, a system of catch basins to channel stormwater flow, and paved roadways. Several of the catch basins drain into a stormwater collection system whose outfalls discharge at various locations along Bound Brook. The other 55 percent of the property is predominantly vegetated. The central part of the undeveloped portion is primarily an open field, with some wooded areas to the northeast and south, and a deteriorated, partially paved area in the middle. The northeast and southeast boundaries consist primarily of wetland areas adjacent to Bound Brook, which flows from the eastern corner across the northeastern border of the undeveloped portion of the facility (Foster Wheeler, 2002).

1.1.4 Site History and Background

Cornell-Dubilier Electronics operated what is now the Hamilton Industrial Park from 1936 to 1962, manufacturing electronic components including capacitors. Polychlorinated biphenyls (PCBs) and chlorinated organic degreasing solvents were used in the manufacturing process. Based on historic site practices, portions of the Site have the potential to be contaminated with asbestos, lead, mercury, PCBs, TCE and dechlorination products, and other constituents of potential concern (COPCs).

Previous studies and evaluations which are listed in paragraph: Information Resources document the presence of hazards at the site including the presence of large amounts of asbestos, metals, PCB containing lighting

ballasts and transformers and capacitors and other hazardous substances which must be abated and / or removed prior to demolition of the site buildings. A tabulation of existing site building information can be found in Section 02220 and existing utility information can be found on the Utility Drawings.

1.1.1.5 Method of Contracting and Project Execution

This is a firm fixed-priced contract. The demolition of the buildings and structures at the site will occur in a staged fashion, corresponding to availability of funding, occupancy of buildings by active businesses, archaeological/historical significance designation, and feasibility of disconnecting utility services with minimum disruption. The Bid Schedules have therefore been configured for the Contractor to provide separate pricing to remove each building and structure independently, or as a group. The Contractor may be directed to demolish and remove some, all, or none of the structures at the site.

1.1.1.6 Scope of Work

The Work to be performed includes hazardous materials removal and disposal, above grade fuel oil storage tank removal and disposal, asbestos abatement and demolition of buildings and structures on the property. The work consists of furnishing all labor, materials, tools, equipment and supervision to demolish the Cornell-Dubilier site buildings. The items of work include, but are not limited to:

- a. Verifying the location of and disconnecting and abandoning all utilities to the individual buildings and structures.
- b. Acquiring and paying the costs of all necessary permits and licenses. All permits shall be obtained in the Contractor's name. USEPA will be designated as the generator for hazardous waste manifesting. Contractor shall obtain and pay for all variances, Storage Tank registration, testing, removal and closure fees, including but not limited to the following:
 - (1) Borough of South Plainfield, New Jersey Demolition Permit including Asbestos Removal Requirements
 - (2) NJDEP Storage Tank registration, testing, removal and closure forms and reports.
 - (3) USEPA Asbestos removal notification.
 - (4) Provisional General Hazardous Waste Generator ID No. for the site if necessary.
 - (5) Notification to Borough of South Plainfield Police and Fire Departments for emergency purposes and for traffic routing.
 - (6) Borough of South Plainfield Sewer Department, American Water Company and applicable utility companies.
- c. Implementing site monitoring and controls including temporary chain link fencing and security, as discussed in detail in the following Sections:
 - (1) 02310 EXCAVATION
 - (2) 02220 DEMOLITION
 - (3) 01356A STORM WATER POLLUTION PREVENTION MEASURES
 - (4) 01500A TEMPORARY CONSTRUCTION FACILITIES
 - (5) 02821A FENCING
 - (6) 01351 SAFETY, HEALTH, AND EMERGENCY RESPONSE (HTRW/UST)
- d. Removal, separation and off-site disposal of trash, tires, and other wastes located within buildings to be demolished and throughout the site as specified in Sections 02220 DEMOLITION and 02350 TRANSPORTATION AND DISPOSAL.

- e. Asbestos removal and disposal as specified in Sections 02350 TRANSPORTATION AND DISPOSAL and 13280A ASBESTOS HAZARD CONTROL ACTIVITIES.
- f. Demolition of buildings and structures as specified in Section 02220 DEMOLITION
- g. Backfilling demolished structures as specified in Sections 02220 DEMOLITION and 02310 EXCAVATION.
- h. Sampling, testing, removal and disposal of hazardous materials and special wastes including PCB-containing materials and equipment, metals, transformers, and capacitors to an approved disposal recycling or disposal facility as specified in Sections 02220 DEMOLITION, 13285 REMOVAL AND DISPOSAL OF PCB CONTAMINATED SOILS, and 13284 REMOVAL AND DISPOSAL OF POLYCHLORINATED BIPHENYLS (PCBS).
- i. Foundation restoration as shown on the Contract Drawings.

1.2 RELOCATION

Relocation of on-site tenants will be necessary prior to demolition and will be arranged by the Government prior to Contractor mobilization. The Contracting Officer will coordinate all tenant relocations with the Contractor. Although relocation is not included in the Contract, the Contractor's work shall not impede relocation efforts.

1.3 LIMITS OF WORK

The limits of work include the designated clusters as indicated on the Contract Drawings. Contractor shall not work beyond the limits for each cluster indicated on the drawings without prior approval from the Contracting Officer.

The Contractor shall satisfy the requirements of all access agreements for the work obtained by the Government.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Pest and Rodent Control Plan;

1.5 PERMITS

The Contractor is responsible for complying with all local, state, and federal permit requirements necessary to perform the work defined in this contract.

1.6 EXISTING WORK

In addition to "FAR 52.236-9, Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements":

- a. Remove or alter existing work in such a manner as to prevent injury or damage to any portions of the existing work which remain.

1.7 LOCATION OF UNDERGROUND FACILITIES

The Contractor shall contact all local utilities and identify all underground utilities prior to start of excavation and submit underground utility mapping to the Contracting Officer 15 calendar days in advance of any site work. Scan the construction site with electromagnetic or sonic equipment, and mark the surface of the ground or paved surface where existing underground utilities are discovered. Verify the elevations of existing piping, utilities, and any type of underground or encased obstruction not indicated or to be specified or removed but indicated or discovered during scanning.

1.7.1 Notification Prior to Excavation

Notify the Contracting Officer at least 15 days prior to starting excavation work.

1.8 ENVIRONMENTAL PROTECTION

Protect human and natural environments during demolition, excavation, and restoration. Environmental protection requires consideration of air, water, and land resources and involves noise, solid waste management, and management of other pollutants. Prevent, abate, and control all environmental pollution arising from the construction activities in performance of this contract. Comply with all federal, state, and local laws and regulations. Perform all work in such a manner as to minimize the pollution of air, water, or land, and, within reasonable limits, control noise and disposal of solid waste materials, as well as other pollutants. Do not remove, cut, deface, injure, or destroy trees or shrubs, except in areas to be cleared, without the Contracting Officer's permission.

1.9 PEST AND RODENT CONTROL

The Contractor shall provide rodent and pest control as required to prevent infestation of construction or storage areas.

- a. Employ methods and use materials that will not adversely affect conditions at the Site or on adjoining properties.
- b. Obtain the services of and pay all costs for a professional exterminator / rodent control expert to visit the site and prepare a Pest and Rodent Control Plan within 30 days of the Notice to Proceed for review with the Contracting Officer.
- c. The requirements of the approved pest control plan shall be in place a minimum of four weeks prior to site mobilization activities, including placement of all traps and bait stations.
- d. Professional exterminator / rodent control expert shall visit site throughout building demolition a minimum of twice per week.
- e. Contractor's Superintendent shall provide written documentation of exterminator visits and work performed to the Contracting Officer on a weekly basis.
- f. Notify the Contracting Officer at least 24 hours in advance of site visits.
- g. Remove all bait, traps, etc at conclusion of demolition.

1.10 HISTORICAL AND ARCHAEOLOGICAL RESOURCES

The Contractor is notified that certain buildings on the Site have historical significance. Accordingly, the Government has undertaken an architectural recordation process in accordance with preservation guidelines. The Contractor shall not proceed with any activities within any cluster without first obtaining written direction from the Contracting Officer; that written direction will only be provided once the architectural recordation process is completed, if necessary. If during construction the Contractor discovers any archaeological or historical items, cease demolition and excavation in that area and notify the Contracting Officer immediately.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01140

WORK RESTRICTIONS

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Name and experience of the Project Manager; G

List of Contact Personnel; G

1.2 PROJECT MANAGEMENT

The Contractor shall provide an overall project management team including a project manager and administrative personnel qualified and capable of providing management for project including construction supervision, expediting labor relations, staffing and recordkeeping. The contractor shall submit a detailed project organizational chart, which shows the key individuals directly involved in the project.

The Project Manager shall take overall responsibility for conducting the work and for assuring the work is conducted in accordance with the requirements of the contract documents. The Project Manager shall be responsible for communication and information exchange with the Contracting Officer and shall represent the Contractor in all project related activities. The project manager, at a minimum, shall have authority to sign payments and change orders. The Contractor shall submit within 14 calendar days following notice to proceed, the name and experience of the Project Manager in writing to the Contracting Officer.

1.3 SPECIAL SCHEDULING REQUIREMENTS

- a. Have materials, equipment, and personnel required to perform the work at the site prior to the commencement of the work. Specific items of work to which this requirement applies include:

- (1) Temporary Facility Trailers in accordance with Section 01110 SUMMARY OF WORK and Section 01500A TEMPORARY CONSTRUCTION FACILITIES

- b. The temporary facility will remain in operation during the entire construction period. The Contractor shall conduct his operations so as to cause the least possible interference with normal operations of the activity.
- c. Permission to interrupt any Activity roads, railroads, and/or utility service shall be requested in writing a minimum of 15 calendar days prior to the desired date of interruption.

- d. The work under this contract requires special attention to the scheduling and conduct of the work in connection with existing operations. Identify on the construction schedule each factor which constitutes a potential interruption to operations.

1.4 DATA RETRIEVAL

The Contractor shall provide a data retrieval recordkeeping system as approved by the Contracting Officer which will make available in a timely manner records of all site activity, quantities of materials delivered to the site, quantity of materials utilized, demolition quantities, water discharged, waste quantities produced, laboratory results, waste transportation activity information and all other information required to support requests for payment.

1.5 CONTRACTOR ACCESS AND USE OF PREMISES

1.5.1 Activity Regulations

Ensure that Contractor personnel employed on the Activity become familiar with and obey Activity regulations including safety, fire, traffic and security regulations. Keep within the limits of the work and avenues of ingress and egress. Wear hard hats in designated areas. Do not enter any restricted areas unless required to do so and until cleared for such entry. The Contractor's equipment shall be conspicuously marked for identification. Contractor Activity and access shall be in accordance with Section 01110 SUMMARY OF WORK.

1.5.1.1 Subcontractors and Personnel Contacts

Furnish a list of contact personnel of the Contractor and subcontractors including addresses and telephone numbers for use in the event of an emergency. As changes occur and additional information becomes available, correct and change the information contained in previous lists.

1.5.1.2 Identification Badges

Not used.

1.5.1.3 Personnel Entry Approval

Failure to obtain entry approval will not affect the contract price or time of completion.

1.5.2 Working Hours

Regular working hours shall consist of a 9 hour period from 7:00 a.m. and 5:00 p.m., Monday through Friday.

1.5.3 Work Outside Regular Hours

Work outside regular working hours requires Contracting Officer approval. Make application 7 calendar days prior to such work to allow arrangements to be made by the Government for inspecting the work in progress. During periods of darkness, the different parts of the work shall be lighted in a manner approved by the Contracting Officer.

1.5.4 Exclusionary Period

There have been no exclusionary periods considered in computing the time allowed for the performance of this contract.

1.5.5 Occupied and Existing Buildings

The Contractor shall be working around existing buildings which are occupied. Do not enter the buildings without prior approval of the Contracting Officer.

1.5.6 Utility Cutovers and Interruptions

- a. Make utility cutovers and interruptions after normal business tenant working hours or on Saturdays, Sundays, and Government holidays; cutovers and interruptions shall be strictly scheduled through the Contracting Officer. Conform to procedures required in the paragraph "Work Outside Regular Hours."
- b. Interruption to water, sanitary sewer, storm sewer, telephone service, electric service, air conditioning, heating, fire alarm, and compressed air shall be considered utility cutovers pursuant to the paragraph entitled "Work Outside Regular Hours."

1.6 SECURITY REQUIREMENTS

Contract Clause "FAR 52.204-2, Security Requirements and Alternate II," "FAC 5252.236-9301, Special Working Conditions and Entry to Work Area," and Section 01540 apply.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01201

PRE-CONSTRUCTION AND PRE-WORK CONFERENCES

PART 1 GENERAL

1.1 PRE-CONSTRUCTION CONFERENCE

Within 15 calendar days after issuance of the Notice to Proceed (NTP), the Contractor shall meet with the Contracting Officer for a Pre-Construction Conference. The purpose of this conference is to discuss the contract clauses (Division 0) and project schedules including: submittals, safety, payrolls, labor relations, environmental protection, work plan and schedules, schedule of values, payment procedures, and procurement of materials. The principal features of work will be reviewed and any questions regarding the Contract and the Site will be addressed. Attendance by the Contractors Superintendent, quality control personnel, safety personnel, and any major Subcontractor's Superintendent is required.

1.2 PRE-WORK CONFERENCE

Within 30 calendar days after the Pre-Construction Conference and prior to mobilization, a Pre-Work Conference will be held between the Contractor and Contracting Officer. Attendance by the Contractor's superintendent, quality control personnel, safety personnel, and any major subcontractor's superintendents shall be required. The purpose of this conference is to review submittals, safety, payrolls and labor relations, environmental protection, project schedules and payment, and procurement of materials.

1.2.1 Pre-Work Conference Requirements

Unless specified otherwise, at least 14 calendar days prior to the Pre-Work Conference and no later than 30 days after the Notice To Proceed, the Contractor shall submit 6 copies of the following for review at the Pre-Work Conference:

- a. Initial Project Schedule, in accordance with SECTION 01320
- b. Site Safety and Health Plan, in accordance with SECTION 01351
- c. Air Monitoring Plan, in accordance with SECTION 01351
- d. Soil Erosion and Sediment Control Plan, in accordance with SECTION 01356A
- e. Sampling and Analysis Plan, in accordance with SECTION 01450A
- f. Contractor Quality Control Plan, in accordance with SECTION 01451A
- g. Security Plan, in accordance with SECTION 01540
- h. Temporary Site Facility Layout Plan, in accordance with SECTION 01500A
- i. Excavation and Handling Plan, in accordance with SECTION 02310
- j. List of Subcontractors
- k. Letter appointing Superintendent

These will be briefly reviewed to provide the Contracting Officer with a general understanding of the Contractor Quality Control (CQC) Plan and other submitted documents. The Contractor's schedule, particularly for the initial startup period, will be discussed. Questions concerning the administrative requirements outlined during the Pre-Construction Conference or any other aspect of the project may also be addressed.

1.3 PRE-CONSTRUCTION QUALITY CONTROL CONFERENCE

After the Pre-Work Conference, before start of construction, a Pre-Construction Quality Control Conference will be held between the Contractor and Contracting Officer. The purpose of this conference is to discuss the quality control procedures to be used for all on-site and off-site work, and defining the interrelationship of the Contractor's Management and the Contracting Officer's Quality Assurance.

1.4 PRE-CONSTRUCTION SAFETY CONFERENCE

The Contractor shall meet with the Contracting Officer for a Pre-Construction Safety Conference, before start of construction. The purpose of this conference is to discuss how work will be implemented including, but not limited to, work procedures, safety considerations associated with those work procedures, heavy equipment to be used, training to operate equipment, and safety requirements, such as training and safety equipment

1.5 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-11 Closeout Submittals

Pre-Construction Conference Meeting Minutes; G, A/E

Pre-Work Conference Meeting Minutes; G, A/E

Pre-Construction Quality Control Conference Meeting Minutes; G, A/E

Pre-Construction Safety Conference Meeting Minutes; G, A/E

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 GENERAL

The Contractor shall schedule and administer the Pre-Construction Conference, Pre-Work Conference, Pre-Construction Quality Control Conference and Pre-Construction Safety Conference, as specified in Paragraphs 1.1 through 1.4 of this section.

The Contractor shall record the minutes of the meetings including significant proceedings and decisions arising from the four (4) conferences (Pre-Construction Conference Meeting Minutes, Pre-Work Conference Meeting Minutes, Pre-Construction Quality Control Conference Meeting Minutes, and Pre-Construction Safety Conference Meeting Minutes), and within five (5) calendar days after each meeting furnish 10 copies of the minutes to the Contracting Officer. After the Contracting Officer's review and approval,

the Contractor shall distribute copies to each participant in the meeting and to parties affected by decisions made at the meeting.

3.2 GENERAL CONFERENCE MEETING REQUIREMENTS

The Contractor shall administer the following general requirements for the conference meetings:

- Prepare agenda for conferences.
- Make physical arrangements for conferences.
- Preside at conferences.

Record the minutes including a detailed description of proceedings and decisions.

-- End of Section --

SECTION 01202

PROJECT PROGRESS MEETINGS

PART 1 GENERAL

1.1 SCOPE OF WORK

This section describes the minimum requirements for conducting Project Progress Meetings during execution of the construction work.

The Contractor shall schedule and administer Project Progress Meetings at a minimum of one per week and such additional meetings as required. Meetings shall be scheduled when requested by either the Contracting Officer or the Contractor during any stage of this project when it is deemed necessary to raise any significant questions, establish new guidelines, introduce a new aspect to the project, or any other items that will affect the progress of work. The Contractor shall attend these meetings with all necessary personnel as determined by the Contracting Officer for the duration of this contract.

Meetings and conferences shall take place at the project site or some other location that is satisfactory to both the Contracting Officer and the Contractor.

1.2 ATTENDANCE

The following persons shall attend the Progress Meetings:

Contracting Officer or its representative.

Contractor's Site Superintendent.

Contractor's Project Manager.

Contractor's Quality Control Manager and/or Key Quality Control Staff.

Contractor's Safety and Health Manager and/or Safety and Health Officer.

Subcontractors as appropriate to the agenda.

Suppliers as appropriate to the agenda.

Others as requested by the Contracting Officer or as appropriate to the agenda.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-11 Closeout Submittals

Project Progress Meeting Minutes; G

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 GENERAL

The Contractor shall schedule and administer Project Progress Meetings at a minimum of once per week and additional meetings as required, and if requested by the Contracting Officer.

3.2 GENERAL MEETING REQUIREMENTS

The Contractor shall administer the following general requirements for the Progress Meetings:

- a. Prepare agenda for meetings.
- b. Make physical arrangements for meetings.
- c. Preside at meetings.
- d. Record the minutes including a detailed description of proceedings and decisions.

The Contractor shall be responsible for recording Project Progress Meeting Minutes and including any significant proceedings and decisions. The Contractor shall reproduce and submit to the Contracting Officer within three (3) calendar days after each meeting three (3) copies of the minutes of the meeting. After the Contracting Officer's review and approval, the Contractor shall distribute copies to each participant in the meeting and to parties affected by decisions made at the meeting.

3.3 SUGGESTED AGENDA

The following is a suggested agenda for Project Progress Meetings:

- a. Review and approval of minutes of previous meeting.
- b. Review of Health and Safety.
- c. Review of work progress.
- d. Field observations, problems, conflicts.
- e. Problems which impede the schedule, and proposed corrective actions.
- f. Review of off-site delivery schedules.
- g. Corrective measures and procedures to regain projected schedule.
- h. Revisions to project schedule.
- i. Progress during succeeding work period.

- j. Coordination of schedules.
 - k. Review of submittal schedules; expedite as required.
 - l. Pending changes and substitutions.
 - m. Review of proposed changes for effect on construction and on completion date, and effect on other contracts of the project.
 - n. Decision of other business, as appropriate.
- End of Section --

SECTION 01270A

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 SCOPE:

This is a firm fixed-price contract. This section covers the methods and procedures which will be used to measure Contractor's work and to make payment. The general outline of the principal features of each bid item as listed does not in any way limit the responsibility of the bidder for making a thorough investigation of the drawings and specifications to determine the scope of work included in each bid item. Payment to the contractor of the amounts based on the quantities of work as measured in accordance with the specified methods of measurement and the prices stipulated in the accepted bid, will constitute complete compensation for all work shown on the Drawings, included in the specifications or other contract documents, and all costs of accepting the general risks, liabilities and obligations expressed or implied. Payment under all bid items shall include, but not necessarily be limited to, compensation for furnishing all plant, supervision, labor, equipment, overhead, profit, materials and services, and performing all work required to accomplish and complete the work specified under each item and all other work required.

1.2 DESCRIPTION OF BID ITEMS

1.2.1 LUMP SUM BID ITEMS

Payment items for the work of this contract for which contract lump sum payments will be made are listed in the Bid Schedule and described below. All costs for items of work, which are not specifically mentioned to be included in a particular lump sum or unit price payment item, shall be included in the listed lump sum item most closely associated with the work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

The quantities of work performed under lump sum bid items will not be measured except for the purposes of determining reasonable interim payments.

Interim payments will be made in accordance with the estimated value of work done as determined by the Contracting Officer or as specified in this section and in accordance with Clause: PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS of the Contract Clauses.

1.2.2 UNIT PRICE BID ITEMS

Payment items for the work of this contract on which the contract unit price payments will be made are listed in the Bid Schedule and described below. The unit price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for each of the unit price items.

Payments will be made for unit price bid items in accordance with the measurement methods set forth in this section or, where specified payment limits are unclear, as determined reasonably by the Contracting Officer, at the unit prices entered in the bid schedule.

Interim measurements and/or payments may be adjusted to account for partially completed work.

1.3 CLUSTER-SPECIFIC SCHEDULE (WORK ITEMS C1/C12-001 THROUGH C1/C12-015)

1.3.1 Work Plans (Work Item C1-001 through C12-001) (**ADDRESSED UNDER EARLIER USACE TASK ORDER**)

This Item shall be presented in the proposal as a lump sum estimate, which shall include all Items described herein, and no separate quantity measurement shall be made. This Item shall include the costs to prepare and submit the initial project schedule and the work plans or work plan amendments required by the Contract Documents.

1.3.2 General Conditions (Work Item C1-002 through C12-002)

This Item shall be presented in the proposal as a lump sum estimate, which shall include all Items described herein, and no separate quantity measurement shall be made. General Conditions shall include all of the Items required under these Contract Documents but not covered under other work Items, including but not limited to the following: the Contractor's cost for insurance, bonds, fees, permits, and other similar expenses directly related to and required by these Contract Documents; project-dedicated supervisory staff and equipment; Home office support (as necessary), project signs and warning signs; fencing and gates; site security; compliance with specified regulatory requirements; construction period planning; administration; coordination with municipalities, subcontractors, disposal facilities, as necessary; Contractor quality control; environmental protection and spill control/emergency response; temporary environmental controls; decontamination facilities; project photographs and videotaping; mobilization / demobilization; updated project schedules; surveying; erosion control; and any submittals not included under the Item for Work Plans. This Item shall also include all costs associated with additional required Work Plans not already addressed in previous USACE Task Orders.

1.3.3 Asbestos Abatement (Work Item C1-003 through C12-003)

This Item shall be presented in the proposal as a lump sum estimate, which shall include all Items described herein, and no separate quantity measurement shall be made. This Item shall include all costs associated with the removal and off-site disposal of Asbestos Containing Building Materials (ACBMs) as described in Section 13280A, Asbestos Hazard Control Activities and as shown on the Contract Drawings. Removal and disposal of asbestos-containing roofing material, including decking material if necessary, will also be paid for under this item. Payment will be made upon receipt of the certificate of disposal by the Contracting Officer.

1.3.4 Above Grade Structure Demolition and Off-Site Disposal (Work Item C1-004 through C12-004)

This Item shall be presented in the proposal as a lump sum estimate, which shall include all Items described herein, and no separate quantity measurement shall be made. This Item shall include all costs associated with non-hazardous above grade structure demolition and off-site disposal including but not limited to:

- a. Demolition of the on-site buildings including interior walls, Structural components and partitions to grade;
- b. Demolition and removal of all building floor slabs, above grade structures, bollards, above grade walls, loading docks and similar structures as described in Section 02220, Demolition;
- c. Demolition of utilities as described in Section 02220, Demolition;
- d. On-site stockpiling and crushing demolition debris to a suitable size as required by off-site disposal facility;
- e. Analytical sampling and testing as required by off-site disposal facility;
- f. Removal and off-site disposal of demolished building materials as described in Section 02220, Demolition.
- g. Any required decontamination/offsite disposal of metals with hazardous PCB concentrations. This also includes removal and disposal of hazardous materials generated as a result of decontamination.
- h. Protection of adjacent/proximate buildings in other clusters. Contractor shall note that these adjacent/proximate buildings may be occupied by site tenants at the time of demolition of the subject cluster; access to those buildings shall not be compromised.

Demolition and off-site disposal of hazardous above grade concrete and masonry structures as shown on the Contract Drawings is not covered under this Item. Payment will be made upon receipt of the certificate of disposal by the Contracting Officer.

1.3.5 Below-Grade Structure Demolition and Off-Site Disposal (Work Item C1-005 through C12-005)

Measurement for this unit cost Item shall be per ton of below-grade non-hazardous structures and concrete. The proposal shall estimate the cost for below grade structure demolition, which includes, but is not limited to:

- a. Demolition of below grade structures and concrete including walls, footings, chases, vaults, basements and similar structures as described in Section 02220, Demolition;
- b. On-site stockpiling and crushing demolition debris to a suitable size as required by off-site disposal facility;

- c. Excavation and exposure necessary to complete demolition of structures;
- d. Analytical sampling and testing as required by off-site disposal facility;
- e. Removal and off-site disposal of demolished structures and concrete, as described in Section 02220, Demolition.
- f. Removal and disposal of buried miscellaneous buried metal and/or non hazardous concrete debris (not associated with building foundations) that may be encountered during subsurface demolition and removal operations.
- g. Protection of adjacent/proximate buildings in other clusters. Contractor shall note that these adjacent/proximate buildings may be occupied by site tenants at the time of demolition of the subject cluster; access to those buildings shall not be compromised.

Demolition and off-site disposal of hazardous below grade structures as shown on the Contract Drawings is not covered under this Item. Payment will be made upon certificate of disposal received by Contracting Officer.

1.3.6 Removal and Disposal of PCB and/or Mercury Contaminated Ballasts, Switches, and Bulbs as Shown on Drawings (Work Item C1-006 through C12-006)

This Item shall be presented in the proposal as a lump sum estimate, which shall include all Items described herein, and no separate quantity measurement shall be made. This Item shall include all costs associated with analytical sampling (as necessary), collection, loading and off-site disposal of all PCB and/or mercury contaminated ballasts, switches, and fluorescent bulbs, as quantified on the Drawings and further described in Sections 02220-Demolition, 13284- Removal and Disposal of Polychlorinated Biphenyls (PCBs), and 13286-Handling of Lighting Ballasts and Lamps Containing PCBs and Mercury. Payment will be made upon receipt of the certificate of disposal by the Contracting Officer.

1.3.7 Demolition, Handling/Stockpiling, Sampling, and Off-Site Disposal of TSCA Waste > 50 ppm (Work Item C1-007 through C12-007)

Measurement for this unit cost Item shall be per ton of hazardous above and below grade concrete and masonry demolished and disposed off-site at a properly permitted facility as PCB Remediation Waste. The proposal shall estimate the cost for demolition and off-site disposal of hazardous above and below grade concrete and masonry (TSCA waste with PCB Concentrations greater than 50 ppm), which shall be full compensation for all labor materials, equipment, and incidentals required for environmental controls, analytical sampling (as necessary to facilitate off-site disposal as PCB Remediation Waste in accordance with 40 CFR 761.61), demolition, temporary stockpiling, loading and off-site disposal as specified in Section 13285, PCB Contaminated Soils and Concrete, Section 02220 Demolition, and Section 02120 Transportation and Disposal of Hazardous Materials. Payment will not be made until Contractor submits all weight tickets and required documentation indicating the actual tonnage of material disposed off-site. Payment will be made upon receipt of the certificate of disposal by the Contracting Officer. Removal and disposal of PCB-contaminated window caulking as shown on the Contract Drawings shall also be included in this Item.

1.3.8 Excavation, Handling/Stockpiling, Sampling, and Off-Site Disposal of TSCA Waste > 50 ppm (Work Item C1-008 through C12-008)

Measurement for this unit cost Item shall be per ton of hazardous soil excavated as part of subsurface demolition activities and disposed off-site at a properly permitted facility. The proposal shall estimate the cost for excavation and off-site disposal of hazardous soil (TSCA waste with PCB Concentrations greater than 50 ppm, but less than 500 ppm), which shall be full compensation for all labor materials, equipment, and incidentals required for environmental controls, analytical sampling (as necessary to facilitate off-site disposal as PCB Remediation Waste in accordance with 40 CFR 761.61), excavation, temporary stockpiling, loading and off-site disposal as specified in Section 13285, PCB Contaminated Soils and Concrete; Section 02310, Excavation; and Section 02120, Transportation and Disposal of Hazardous Materials. Payment will not be made until Contractor submits all weight tickets and required documentation indicating the actual tonnage of material disposed off-site. Payment will be made upon receipt of the certificate of disposal by the Contracting Officer. Excavation, handling/stockpiling, sampling, treatment and disposal of soil with PCB concentrations greater than 500 ppm shall be in accordance with Supplemental Schedule Pay Item S-006.

1.3.9 Excavation, Handling/Stockpiling, Sampling, and On-Site Reuse of Non-Hazardous Excavated Soil (Work Item C1-009 through C12-009)

Measurement for this unit cost Item shall be per cubic yard of non-hazardous excavated soil reused on Site, measured in-place as directed by Contracting Officer. The proposal shall estimate the cost for excavation and on-site reuse of non-hazardous soils, which shall be full compensation for all labor, material, equipment, surveys and incidentals required for excavation, temporary stockpiling, analytical sampling, on-site hauling, placement and backfill as directed by Contracting Officer and as specified in Sections 02310, Excavation; and 02320, Backfill and Compaction. Soils proposed for reuse on-site as foundation excavation backfill shall have contaminant concentrations below the cleanup criteria specified in the ROD and shall be in conformance with NJDEP Residential/Non-Residential Direct Contact Cleanup Criteria.

1.3.10 Excavation, Handling/Stockpiling, Sampling, and Off-Site Disposal of Non-Hazardous Excavated Soil (Work Item C1-010 through C12-010)

Measurement for this unit cost Item shall be per ton of non-hazardous soil with contaminant concentrations above the cleanup criteria specified in the ROD, excavated as part of subsurface demolition activities and disposed off-site at a properly permitted facility. The proposal shall estimate the cost for excavation and off-site disposal of non-hazardous soils which shall be full compensation for all labor materials, equipment, and incidentals required for environmental controls, analytical sampling (as necessary to facilitate off-site disposal), excavation, temporary stockpiling, loading and off-site disposal as specified in Section 02310, Excavation. Payment will not be made until Contractor submits all weight tickets and required documentation indicating the actual tonnage of material disposed off-site. Payment will be made upon receipt of the certificate of disposal by the Contracting Officer.

1.3.11 Controlled Low Strength Material (Work Item C1-011 through C12-011)

Measurement for this unit cost Item shall be per cubic yard of controlled low strength material furnished and placed on-site. The proposal shall estimate the cost for low strength material, which shall be full compensation for all labor, material, equipment and incidentals required for purchase, importation and placement as directed by Contracting Officer and as specified in Section 02320, Backfill and Compaction.

1.3.12 Dense Graded Aggregate (Work Item C1-012 through C12-012)

Measurement for this unit cost Item shall be per ton of Dense Graded Aggregate furnished and placed on-site for sub-base material and trench backfill. The proposal shall estimate the cost for Dense Graded Aggregate, which shall be full compensation for all labor, material, equipment and incidentals required for purchase, importation, placement, and compaction of dense graded aggregate as specified in Section 02320, Backfill and Compaction and as shown on the Contract Drawings.

1.3.13 Bituminous Surface Course (Work Item C1-013 through C12-013)

Measurement for this unit cost Item shall be per square yard of bituminous surface course furnished and placed to the thickness shown on the Contract Drawings. The proposal shall estimate the cost for bituminous surface course, which shall be full compensation for all labor, material, equipment and incidentals required for purchase, importation, placement, and compaction of bituminous surface course as shown and as specified in Section 02742, Hot Mix Bituminous Pavement.

1.3.14 Geotextile (Work Item C1-014 through C12-014)

Measurement for this unit cost Item shall be per square foot of geotextile furnished and installed. The proposal shall estimate the cost for geotextile, which shall be full compensation for all labor, material, equipment, and incidentals required for purchase, importation, and placement of geotextile as shown and specified in Section 02373, Geotextile and shown on the Contract Drawings.

1.3.15 Water Handling, Temporary Storage, and Off-Site Disposal (Work Item C1-015 through C12-015)

This Item shall be presented in the proposal as a lump sum estimate, which shall include all Items described herein, and no separate quantity measurement shall be made. This Item shall include all costs associated with pumping, handling, temporary storage, analytical sampling and off-site disposal of hazardous water generated as a result of decontamination operations and/or precipitation entering open excavations during demolition activities. The Contractor shall provide temporary cover over open excavations, and implement other site controls as necessary to limit the amount of precipitation entering open excavations. No additional compensation shall be made if actual water disposal quantities are higher than originally anticipated by Contractor.

END OF CLUSTER-SPECIFIC SCHEDULE

1.4 SUPPLEMENTAL SCHEDULE (WORK ITEMS S-001 THROUGH S-014)

1.4.1 Removal and Relocation or Disposal of Furnishings and
Trash/Debris(Work Item S-001)

This Item shall be presented in the proposal as an allowance. This Item includes all costs associated with the removal and relocation or off-site disposal of furnishings remaining in buildings prior to demolition. This Item also includes removal and off-site disposal of trash and debris, and other miscellaneous wastes including containerized contents, solvents and degreasers, capacitors and transformers containing PCBs, waste oil, batteries, tires and pressurized vessels, located within and adjacent to site buildings prior to demolition activities. Contractor shall submit documentation of actual cost of labor material, equipment, and incidentals, as well as transportation and disposal fees, Contractor's overhead and profit for payment under this Item. Payment will be made upon receipt of the certificate of disposal by the Contracting Officer.

1.4.2 Removal and Disposal of Underground Storage Tanks and Contents(5,000
Gallons or Less) (Work Item S-002)

Measurement for this unit cost Item shall be per each underground storage tank removed and disposed off-site at a properly permitted facility. The proposal shall estimate the cost for notifications, analytical sampling, storage tank content removal, tank excavation, off-site disposal, backfill replacement, and all other requirements described in Section 02650, Storage Tank Removal. This Item will only be paid if underground storage tanks are encountered during below grade demolition operations. Payment will be made upon receipt of the certificate of disposal by the Contracting Officer.

1.4.3 Removal and Disposal of Hazardous Wood Flooring Blocks (Work Item S-
003)

Measurement for this unit cost Item shall be per ton of hazardous wood flooring blocks removed and disposed off-site at a properly permitted facility. The proposal shall estimate the cost for excavation and off-site disposal of hazardous wood flooring blocks. Payment will be made upon receipt of the certificate of disposal by the Contracting Officer.

1.4.4 Demolition, Handling/Stockpiling, Sampling, and Off-Site Disposal of
RCRA Waste (Failing TCLP) (Work Item S-004)

Measurement for this unit cost Item shall be per ton of hazardous above and below grade concrete and masonry demolished and disposed off-site at a properly permitted facility. The proposal shall estimate the cost for demolition and off-site disposal of hazardous above and below grade concrete and masonry (RCRA Waste Failing TCLP), which shall be full compensation for all labor materials, equipment, and incidentals required for environmental controls, analytical sampling (as necessary to facilitate off-site disposal), demolition, temporary stockpiling, loading and off-site disposal as specified in Section 02220, Demolition and Section 02120 Transportation and Disposal of Hazardous Materials. Payment will not be made until Contractor submits all weight tickets and required documentation indicating the actual tonnage of material disposed off-site.

Payment will be made upon receipt of the certificate of disposal by the Contracting Officer.

1.4.5 Demolition, Handling/Stockpiling, Sampling, and Off-Site Disposal of Mixed Waste - Both TSCA and RCRA [TSCA > 50 ppm] (Work Item S-005)

Measurement for this unit cost Item shall be per ton of hazardous above and below grade concrete and masonry demolished and disposed off-site at a properly permitted facility. The proposal shall estimate the cost for demolition and off-site disposal of hazardous above and below grade concrete and masonry (RCRA Waste Failing TCLP and TSCA waste with PCB concentrations greater than 50 ppm), which shall be full compensation for all labor materials, equipment, and incidentals required for environmental controls, analytical sampling (as necessary to facilitate off-site disposal), demolition, temporary stockpiling, loading and off-site disposal as specified in Section 13285, PCB Contaminated Soils and Concrete, Section 02220, Demolition and Section 02120 Transportation and Disposal of Hazardous Materials. Payment will not be made until Contractor submits all weight tickets and required documentation indicating the actual tonnage of material disposed off-site. Payment will be made upon receipt of the certificate of disposal by the Contracting Officer.

1.4.6 Excavation, Handling/Stockpiling, Sampling, and Off-Site Treatment and Disposal of TSCA Waste > 500 ppm (Work Item S-006)

Measurement for this unit cost Item shall be per ton of hazardous soil excavated as part of subsurface demolition activities, treated and disposed off-site at a properly permitted facility. The proposal shall estimate the cost for excavation, off-site treatment and disposal of hazardous soil (TSCA waste with PCB Concentrations greater than 500 ppm), which shall be full compensation for all labor materials, equipment, and incidentals required for environmental controls, analytical sampling (as necessary to facilitate off-site disposal as PCB Remediation Waste in accordance with 40 CFR 761.61), excavation, temporary stockpiling, loading and off-site treatment and disposal as specified in Section 13285, PCB Contaminated Soils and Concrete, Section 02310, Excavation and Section 02120 Transportation and Disposal of Hazardous Materials. Payment will not be made until Contractor submits all weight tickets and required documentation indicating the actual tonnage of material disposed off-site. Payment will be made upon receipt of the certificate of disposal by the Contracting Officer. Excavation, handling/stockpiling, sampling and disposal of soil with PCB concentrations less than 500 ppm but greater than 50 ppm shall be in accordance with Cluster-Specific Schedule Pay Items C1 through C12-008).

1.4.7 Excavation, Handling/Stockpiling, Sampling, and Off-Site Disposal of RCRA Waste (Failing TCLP) (Work Item S-007)

Measurement for this unit cost Item shall be per ton of hazardous soil excavated as part of subsurface demolition activities and disposed off-site at a properly permitted facility. The proposal shall estimate the cost for excavation and off-site disposal of hazardous soils (RCRA Waste Failing TCLP), which shall be full compensation for all labor materials, equipment, and incidentals required for environmental controls, analytical sampling (as necessary to facilitate off-site disposal), excavation, temporary stockpiling, loading and off-site disposal as specified in

Section 02310, Excavation and Section 02120 Transportation and Disposal of Hazardous Materials. Payment will not be made until Contractor submits all weight tickets and required documentation indicating the actual tonnage of material disposed off-site. Payment will be made upon receipt of the certificate of disposal by the Contracting Officer.

1.4.8 Excavation, Handling/Stockpiling, Sampling, and Off-Site Disposal of Mixed Waste - Both TSCA and RCRA [TSCA > 50 ppm, < 500 ppm] (Work Item S-008)

Measurement for this unit cost Item shall be per ton of hazardous soil excavated as part of subsurface demolition activities and disposed off-site at a properly permitted facility. The proposal shall estimate the cost for excavation and off-site disposal of hazardous soils (RCRA Waste Failing TCLP and TSCA waste with PCB concentrations less than 500 ppm), which shall be full compensation for all labor materials, equipment, and incidentals required for environmental controls, analytical sampling (as necessary to facilitate off-site disposal), excavation, temporary stockpiling, loading and off-site disposal as specified in Section 13285, PCB Contaminated Soils and Concrete, Section 02310, Excavation and Section 02120 Transportation and Disposal of Hazardous Materials. Payment will not be made until Contractor submits all weight tickets and required documentation indicating the actual tonnage of material disposed off-site. Payment will be made upon receipt of the certificate of disposal by the Contracting Officer. Excavation, handling/stockpiling, sampling, and off-site disposal of soil classified as mixed waste, with PCB concentrations greater than 500 ppm shall be in accordance with Supplemental Schedule Pay Item S-009).

1.4.9 Excavation, Handling/Stockpiling, Sampling, and Off-Site Disposal of Mixed Waste - Both TSCA and RCRA [TSCA > 500 ppm] (Work Item S-009)

Measurement for this unit cost Item shall be per ton of hazardous soil excavated as part of subsurface demolition activities and disposed off-site at a properly permitted facility. The proposal shall estimate the cost for excavation and off-site disposal of hazardous soils (RCRA Waste Failing TCLP and TSCA waste with PCB concentrations greater than 500 ppm), which shall be full compensation for all labor materials, equipment, and incidentals required for environmental controls, analytical sampling (as necessary to facilitate off-site disposal), excavation, temporary stockpiling, loading and off-site disposal as specified in Section 13285, PCB Contaminated Soils and Concrete, Section 02310, Excavation and Section 02120 Transportation and Disposal of Hazardous Materials. Payment will not be made until Contractor submits all weight tickets and required documentation indicating the actual tonnage of material disposed off-site. Payment will be made upon receipt of the certificate of disposal by the Contracting Officer. Excavation, handling/stockpiling, sampling and disposal of soil classified as mixed waste, with PCB concentrations less than 500 ppm but greater than 50 ppm shall be in accordance with Supplemental Schedule Pay Item S-008).

1.4.10 General Utility Management (Work Item S-010)

This Item shall be presented in the proposal as an allowance. This Item includes all costs associated with general utility management. Specific utility management tasks include, but are not limited to:

- a. Installing line stops
- b. Installing fire hydrants if necessary
- c. Abandonment of fire suppression water mains
- d. Disconnection of water service for each building
- e. Disconnection of gas main at each bldg
- f. Disconnection and abandonment of sanitary sewer 6' outside of building foundation
- g. All required coordination with public utilities
- h. Temporary utility bypasses if necessary
- i. Utility test pits

The Contractor shall submit documentation of actual cost of labor, material, equipment, and Contractor's overhead and profit, and incidentals for payment under this Item.

1.4.11 Geophysical Survey Scan Around Buildings (Work Item S-011)

This Item shall be presented in the proposal as a lump sum estimate, which shall include all Items described herein, and no separate quantity measurement shall be made. This Item shall include all costs associated with geophysical surface scanning around the perimeter of each building or structure located within the Site for the purposes of underground utility location. The Contractor shall not excavate prior to performance of geophysical surface scanning, and approval by Contracting Officer.

1.4.12 Additional Asbestos Abatement (Work Item S-012)

This Item shall be presented in the proposal as an allowance. This Item includes all costs associated with the removal and off-site disposal of additional Asbestos Containing Building Materials (ACBMs) not shown on the Contract Drawings, or specified in Section 13280A, Asbestos Hazard Control Activities. Contractor shall submit documentation of actual cost of labor material, equipment, and incidentals, as well as transportation and disposal fees, and Contractor's overhead and profit for payment under this Item.

1.4.13 Temporary Facilities (Work Item S-013)

Measurement for this unit cost Item shall be per month of temporary facilities provided. The proposal shall estimate the cost for temporary facilities, which shall be full compensation for all labor, material, equipment, and incidentals required to maintain all required construction trailers, including associated amenities and utilities.

1.4.14 Air Monitoring (Work Item 0014)

Measurement for this unit cost Item shall be per month of perimeter air monitoring services. The proposal shall estimate the cost for perimeter air monitoring services, which shall be full compensation for all labor, material, equipment, and incidentals required to provide all perimeter air monitoring (with the exception of asbestos monitoring, which shall be paid

for under the Asbestos Abatement Item), as required by Section 01351, Safety, Health, and Emergency Response (HTRW / UST), and Section 13285, Removal and Disposal of PCB Contaminated Soils and Concrete.

END OF SUPPLEMENTAL SCHEDULE

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01312A

QUALITY CONTROL SYSTEM (QCS)

PART 1 GENERAL

1.1 REFERENCES

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2003) Safety and Health Requirements
Manual

1.2 GENERAL

The Government will use the Resident Management System for Windows (RMS) to assist in its monitoring and administration of this contract. The Contractor shall use the Government-furnished Construction Contractor Module of RMS, referred to as QCS, to record, maintain, and submit various information throughout the contract period. The Contractor module, user manuals, updates, and training information can be downloaded from the RMS web site. This joint Government-Contractor use of RMS and QCS will facilitate electronic exchange of information and overall management of the contract. QCS provides the means for the Contractor to input, track, and electronically share information with the Government in the following areas:

- Administration
- Finances
- Quality Control
- Submittal Monitoring
- Scheduling
- Import/Export of Data

1.2.1 Correspondence and Electronic Communications

For ease and speed of communications, both Government and Contractor will, to the maximum extent feasible, exchange correspondence and other documents in electronic format. Correspondence, pay requests and other documents comprising the official contract record shall also be provided in paper format, with signatures and dates where necessary. Paper documents will govern, in the event of discrepancy with the electronic version.

1.2.2 Other Factors

Particular attention is directed to Contract Clause, "Schedules for Construction Contracts", Contract Clause, "Payments", Section 01320, PROJECT SCHEDULE, Section 01330, SUBMITTAL PROCEDURES, and Section 01451A, CONTRACTOR QUALITY CONTROL, which have a direct relationship to the reporting to be accomplished through QCS. Also, there is no separate payment for establishing and maintaining the QCS database; all costs associated therewith shall be included in the contract pricing for the work.

1.3 QCS SOFTWARE

QCS is a Windows-based program that can be run on a stand-alone personal computer or on a network. The Government will make available the QCS

software to the Contractor after award of the construction contract. Prior to the Pre-Construction Conference, the Contractor shall be responsible to download, install and use the latest version of the QCS software from the Government's RMS Internet Website. Upon specific justification and request by the Contractor, the Government can provide QCS on 3-1/2 inch high-density diskettes or CD-ROM. Any program updates of QCS will be made available to the Contractor via the Government RMS Website as they become available.

1.4 SYSTEM REQUIREMENTS

The following listed hardware and software is the minimum system configuration that the Contractor shall have to run QCS:

Hardware

IBM-compatible PC with 1000 MHz Pentium or higher processor
256+ MB RAM for workstation / 512+ MB RAM for server
4 GB hard drive disk space for sole use by the QCS system
3 1/2 inch high-density floppy drive
Compact disk (CD) Reader, 8x speed or higher
SVGA or higher resolution monitor (1024 x 768, 256 colors)
Mouse or other pointing device
Windows compatible printer (Laser printer must have 4+ MB of RAM)
Connection to the Internet, minimum 56k BPS

Software

MS Windows 2000 or higher
Word Processing software compatible with MS Word 2000 or newer
Latest version of : Netscape Navigator, Microsoft Internet Explorer, or other browser that supports HTML 4.0 or higher
Electronic mail (E-mail), MAPI compatible
Virus protection software that is regularly upgraded with all issued manufacturer's updates and is carried throughout the life of the Contract

1.5 RELATED INFORMATION

1.5.1 QCS User Guide

After contract award, the Contractor shall download instructions for the installation and use of QCS from the Government RMS Internet Website; the Contractor can obtain the current address from the Government. In case of justifiable difficulties, the Government will provide the Contractor with a CD-ROM containing these instructions.

1.6 CONTRACT DATABASE

Prior to the pre-construction conference, the Government shall provide the Contractor with basic contract award data to use for QCS. The Government will provide data updates to the Contractor as needed, generally by files attached to E-mail. These updates will generally consist of submittal reviews, correspondence status, QA comments, and other administrative and QA data.

1.7 DATABASE MAINTENANCE

The Contractor shall establish, maintain, and update data for the contract in the QCS database throughout the duration of the contract. The Contractor shall establish and maintain the QCS database at the Contractor's site office. Data updates to the Government shall be submitted by E-mail with file attachments, e.g., daily reports, schedule updates, payment requests. If permitted by the Contracting Officer, a data diskette or CD-ROM may be used instead of E-mail (see Paragraph DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM). The QCS database typically shall include current data on the following items:

1.7.1 Administration

1.7.1.1 Contractor Information

The database shall contain the Contractor's name, address, telephone numbers, management staff, and other required items. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver Contractor administrative data in electronic format via E-mail.

1.7.1.2 Subcontractor Information

The database shall contain the name, trade, address, phone numbers, and other required information for all subcontractors. A subcontractor must be listed separately for each trade to be performed. Each subcontractor/trade shall be assigned a unique Responsibility Code, provided in QCS. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver subcontractor administrative data in electronic format via E-mail.

1.7.1.3 Correspondence

All Contractor correspondence to the Government shall be identified with a serial number. Correspondence initiated by the Contractor's site office shall be prefixed with "S". Letters initiated by the Contractor's home (main) office shall be prefixed with "H". Letters shall be numbered starting from 0001. (e.g., H-0001 or S-0001).

1.7.1.4 Requests for Information

QCS includes a means for the Contractor to enter, log, and transmit requests for information (RFI) to the government. RFIs can be exchanged electronically using the import/export functions of QCS. Also provide a signed, printed copy of each RFI. All RFIs from the Contractor to the government shall have the prefix "RFI" and shall be numbered sequentially beginning with RFI-0001.

1.7.1.5 Equipment

The Contractor's QCS database shall contain a current list of equipment planned for use or being used on the jobsite, including the most recent and planned equipment inspection dates.

1.7.1.6 EM 385-1-1, Corps of Engineers Safety Manual and RMS Linkage

Upon request, the Contractor can obtain a copy of the current version of the Safety Manual, EM 385-1-1, on CD. Data on the CD will be accessible through QCS, or in stand-alone mode.

1.7.1.7 Management Reporting

QCS includes a number of reports that Contractor management can use to track the status of the project. The value of these reports is reflective of the quality of the data input, and is maintained in the various sections of QCS. Among these reports are: Progress Payment Request worksheet, QA/QC comments, Submittal Register Status, Three-Phase Inspection checklists.

1.7.2 Finances

1.7.2.1 Pay Activity Data

The QCS database shall include a list of pay activities that the Contractor shall develop in conjunction with the construction schedule. The sum of all pay activities shall be equal to the total contract amount, including modifications. Pay activities shall be grouped by Contract Line Item Number (CLIN), and the sum of the activities shall equal the amount of each CLIN. The total of all CLINs equals the Contract Amount.

1.7.2.2 Payment Requests

All progress payment requests shall be prepared using QCS. The Contractor shall complete the payment request worksheet and include it with the payment request. The work completed under the contract, measured as percent or as specific quantities, shall be updated at least monthly. After the update, the Contractor shall generate a payment request report using QCS. The Contractor shall submit the payment requests with supporting data by E-mail with file attachment(s). If permitted by the Contracting Officer, a data diskette may be used instead of E-mail. A signed paper copy of the approved payment request is also required, which shall govern in the event of discrepancy with the electronic version.

1.7.3 Quality Control (QC)

QCS provides a means to track implementation of the 3-phase QC Control System, prepare daily reports, identify and track deficiencies, document progress of work, and support other contractor QC requirements. The Contractor shall maintain this data on a daily basis. Entered data will automatically output to the QCS generated daily report. The Contractor shall provide the Government a Contractor Quality Control (CQC) Plan within the time required in Section 01451A, CONTRACTOR QUALITY CONTROL. Within seven calendar days of Government acceptance, the Contractor shall submit a data diskette or CD-ROM reflecting the information contained in the accepted CQC Plan: schedule, pay activities, features of work, submittal register, QC requirements, and equipment list.

1.7.3.1 Daily Contractor Quality Control (CQC) Reports.

QCS includes the means to produce the Daily CQC Report. The Contractor may use other formats to record basic QC data. However, the Daily CQC Report generated by QCS shall be the Contractor's official report. Data from any supplemental reports by the Contractor shall be summarized and consolidated onto the QCS-generated Daily CQC Report. Daily CQC Reports shall be submitted as required by Section 01451A, CONTRACTOR QUALITY CONTROL. Reports shall be submitted electronically to the Government using E-mail or diskette within 24 hours after the date covered by the report. Use of either mode of submittal shall be coordinated with the Government representative. The Contractor shall also provide the Government a signed, printed copy of the daily CQC report with all the required attachments within 24 hours after the date covered by the report.

1.7.3.2 Deficiency Tracking.

The Contractor shall use QCS to track deficiencies. Deficiencies identified by the Contractor will be numerically tracked using QC punch list items. The Contractor shall maintain a current log of its QC punch list items in the QCS database. The Government will log the deficiencies it has identified using its QA punch list items. The Government's QA punch list items will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of both QC and QA punch list items.

1.7.3.3 Three-Phase Control Meetings

The Contractor shall maintain scheduled and actual dates and times of preparatory and initial control meetings in QCS.

1.7.3.4 Accident/Safety Tracking.

The Government will issue safety comments, directions, or guidance whenever safety deficiencies are observed. The Government's safety comments will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of the safety comments. In addition, the Contractor shall utilize QCS to advise the Government of any accidents occurring on the jobsite. This brief supplemental entry is not to be considered as a substitute for completion of mandatory reports, e.g., ENG Form 3394 and OSHA Form 300.

1.7.3.5 Features of Work

The Contractor shall include a complete list of the features of work in the QCS database. A feature of work may be associated with multiple pay activities. However, each pay activity (see subparagraph "Pay Activity Data" of paragraph "Finances") will only be linked to a single feature of work.

1.7.3.6 QC Requirements

The Contractor shall develop and maintain a complete list of QC testing, transferred and installed property, and user training requirements in QCS. The Contractor shall update all data on these QC requirements as work progresses, and shall promptly provide this information to the Government via QCS.

1.7.4 Submittal Management

The Government will provide the initial submittal register, ENG Form 4288, SUBMITTAL REGISTER, in electronic format. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall use QCS to track and transmit all submittals. ENG Form 4025, submittal transmittal form, and the submittal register update, ENG Form 4288, shall be produced using QCS. RMS will be used to update, store and exchange submittal registers and transmittals, but will not be used for storage of actual submittals.

1.7.5 Schedule

The Contractor shall develop a construction schedule consisting of pay activities, in accordance with Contract Clause "Schedules for Construction Contracts", or Section 01320, PROJECT SCHEDULE, as applicable. This schedule shall be input and maintained in the QCS database either manually or by using the Standard Data Exchange Format (SDEF) (see Section 01320 PROJECT SCHEDULE). The updated schedule data shall be included with each pay request submitted by the Contractor.

1.7.6 Import/Export of Data

QCS includes the ability to export Contractor data to the Government and to import submittal register and other Government-provided data, and schedule data using SDEF.

1.8 IMPLEMENTATION

Contractor use of QCS as described in the preceding paragraphs is mandatory. The Contractor shall ensure that sufficient resources are available to maintain its QCS database, and to provide the Government with regular database updates. QCS shall be an integral part of the Contractor's management of quality control.

1.9 DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

The Government-preferred method for Contractor's submission of updates, payment requests, correspondence and other data is by E-mail with file attachment(s). For locations where this is not feasible, the Contracting Officer may permit use of computer diskettes or CD-ROM for data transfer. Data on the disks or CDs shall be exported using the QCS built-in export function. If used, diskettes and CD-ROMs will be submitted in accordance with the following:

1.9.1 File Medium

The Contractor shall submit required data on 3-1/2 inch double-sided high-density diskettes formatted to hold 1.44 MB of data, capable of running under Microsoft Windows 95 or newer. Alternatively, CD-ROMs may be used. They shall conform to industry standards used in the United States. All data shall be provided in English.

1.9.2 Disk or CD-ROM Labels

The Contractor shall affix a permanent exterior label to each diskette and CD-ROM submitted. The label shall indicate in English, the QCS file name,

full contract number, contract name, project location, data date, name and telephone number of person responsible for the data.

1.9.3 File Names

The Government will provide the file names to be used by the Contractor with the QCS software.

1.10 MONTHLY COORDINATION MEETING

The Contractor shall update the QCS database each workday. At least monthly, the Contractor shall generate and submit an export file to the Government with schedule update and progress payment request. As required in Contract Clause "Payments", at least one week prior to submittal, the Contractor shall meet with the Government representative to review the planned progress payment data submission for errors and omissions. The Contractor shall make all required corrections prior to Government acceptance of the export file and progress payment request. Payment requests accompanied by incomplete or incorrect data submittals will be returned. The Government will not process progress payments until an acceptable QCS export file is received.

1.11 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the requirements of this specification. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification.

-- End of Section --

SECTION 01320

PROJECT SCHEDULE

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. ARMY CORPS OF ENGINEERS (USACE)

ER 1-1-11 (1995) Progress, Schedules, and Network
Analysis Systems

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Preliminary Project Schedule; G

Submit a Preliminary Project Schedule for approval within 14 days after Notice to Proceed defining the Contractor's planned operations for the first 60 calendar days.

The data disk, reports, and network diagrams required for each submission are contained in the paragraph entitled SUBMISSION REQUIREMENTS.

Initial Project and Cluster Schedules; G

Submit Initial Project and Cluster Schedules for approval at least 14 days prior to the Pre-Work Conference defining the Contractor's planned operations. A separate schedule for each cluster shall be provided. Submit a revised project schedule, if necessary, for approval.

The data disk, reports, and network diagrams required for each submission are contained in the paragraph entitled SUBMISSION REQUIREMENTS.

Periodic Schedule Update; G

Submit periodic schedule update based on the results of progress meetings, specified in "Periodic Progress Meetings." Submit updates every two weeks at a minimum. These submissions shall enable the Contracting Officer to assess Contractor's progress.

The data disk, reports, and network diagrams required for each submission are contained in the paragraph entitled SUBMISSION REQUIREMENTS.

1.3 SUBMISSION REQUIREMENTS

Provide the Standard Activity Coding Dictionary in accordance with the activity coding structure defined in the Standard Data Exchange Format (SDEF) in ER 1-1-11, Appendix A. This exact structure is mandatory, even if some fields are not used. Submit the following for the preliminary submission, initial submission, and every Periodic Schedule Update throughout the life of the project:

1.3.1 Data Disks

Provide data containing the project schedule on CD-R's. Adhere to the SDEF format specified in ER 1-1-11, Appendix A.

1.3.1.1 File Medium

Submit required data on CD-Rs, unless otherwise approved by the Contracting Officer.

1.3.1.2 Disk Label

Affix a permanent exterior label to each disk submitted. Indicate the type of schedule (Preliminary, Initial, Update, or Change), full contract number, project name, project location, data date, and name and telephone number or person responsible for the schedule.

1.3.1.3 File Name

Submit each file with a name related to either the schedule data date, project name, or contract number. Develop a naming convention that will ensure that the names of the files submitted are unique, and submit the file naming convention to the Contracting Officer for approval.

1.3.2 Narrative Report

Provide a Narrative Report with the preliminary, initial, and each update of the project schedule. Include a description of activities along the two most critical paths, a description of current and anticipated problem areas or delaying factors and their impact, and an explanation of corrective actions taken or required to be taken. The narrative report is expected to relay the Contractor's thorough analysis of the schedule output and its plans to compensate for any problems, either current or potential, which are revealed through that analysis.

1.3.3 Approved Changes Verification

Include only project schedule changes that have been previously approved by the Contracting Officer in the schedule submission. The Narrative Report shall specifically reference, on an activity by activity basis, all changes made since the previous period and relate each change to documented, approved schedule changes.

1.3.4 Schedule Reports

The format for each activity for the schedule reports listed below shall contain: Activity Numbers, Activity Description, Original Duration, Remaining Duration, Early Start Date, Early Finish Date, Late Start Date, Late Finish Date, Total Float. Actual Start and Actual Finish Dates shall be printed for those activities in progress or completed.

1.3.4.1 Activity Report

A list of all activities sorted according to activity number.

1.3.4.2 Logic Report

A list of Preceding and Succeeding activities for every activity in ascending order by activity number. Preceding and succeeding activities shall include all information listed above in paragraph Schedule Reports. Leave a blank line between each activity grouping.

1.3.4.3 Total Float Report

A list of all incomplete activities sorted in ascending order of total float. List activities that have the same amount of total float in ascending order of Early Start Dates. Do not show completed activities on this report.

1.3.4.4 Earnings Report

A compilation of the Contractor's Total Earnings on the project from the NTP until the most recent Monthly Progress Meeting. Reflect the Earnings of specific activities based on the agreements made in the field and approved between the Contractor and Contracting Officer at the most recent Monthly Progress Meeting. Provided that the Contractor has provided a complete schedule update. Group activities by Work Breakdown Structure (WBS) and sort by activity numbers. This report shall sum all activities in a WBS and provide a WBS percent complete; and complete and sum all WBS to provide a total project percent complete. The printed report shall contain, for each activity: the Activity Number, Activity Description, Original Budgeted Amount, Total Quantity, Quantity to Date, Percent Complete (based on cost), Earnings to Date, and fee.

1.3.5 Network Diagram

The network diagram is required on the initial schedule submission and on monthly schedule update submissions. The network diagram depicts and displays order and interdependence of activities and the sequence in which the work is to be accomplished. The Contracting Officer will use the following conditions to review compliance with this paragraph:

1.3.5.1 Continuous Flow

Show a continuous flow from left to right with no arrows from right to left on diagrams. Show the activity number, description, duration, and estimated earned value on the diagram.

1.3.5.2 Project Milestone Dates

Show dates for start of project, contract required interim completion dates, and contract completion dates on the diagram.

1.3.5.3 Banding

Group activities to assist in the understanding of the activity sequence. Typically, this flow will group activities by category of work, work area and/or responsibility.

1.3.5.4 S-Curves

Earnings curves showing projected early and late earnings and earnings to date.

1.4 QUALIFICATIONS

Designate an authorized representative responsible for the preparation of all required project schedule reports.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

Provide a Project Schedule for each cluster as described below. The scheduling of construction shall be the responsibility of the Contractor who shall actively participate in its development. Subcontractors and suppliers working on the project shall also contribute in developing and maintaining an accurate Project Schedule. The approved Project Schedule shall be used to measure the progress of the work, and to aid in evaluating time extensions.

The contractor shall show the dates for the beginning and completion of each major operation or segment of work. This list must include, but is not limited to:

- a. All State and local permits
- b. Mobilization
- c. Health and safety requirements
- d. Securing site utilities and temporary facilities
- e. Erosion Control
- f. Building Demolition
- g. Building preparation
- h. Project closeout and demolition

3.2 BASIS FOR PAYMENT

The schedule shall be the basis for measuring Contractor progress. Lack of an approved schedule and scheduling personnel will result in an inability of the Contracting Officer to evaluate Contractor's progress. Verified, approved actual costs will be the basis for Contractor payment.

3.3 PRELIMINARY PROJECT SCHEDULE

Utilize the computer software system to produce the Preliminary Project Schedule that is capable of providing all requirements of this specification and submit to the Contracting Officer prior to use. Failure to meet the requirements of this specification shall result in the disapproval of the schedule. Manual methods used to produce any required information require approval by the Contracting Officer.

3.4 INITIAL PROJECT SCHEDULE

Utilize the computer software system to produce the Initial Project and Cluster Schedules that is capable of providing all requirements of this specification and submit to the Contracting Officer prior to use. Failure to meet the requirements of this specification shall result in the disapproval of the schedule. Manual methods used to produce any required information require approval by the Contracting Officer.

3.4.1 Use of the Critical Path Method

The Contractor shall provide the Project Schedule in the Precedence Diagram Method (PDM) and in the form of a GANTT chart.

3.4.2 Level of Detail Required

Failure to develop or update the Initial Project and Cluster Schedules or provide data at the appropriate level of detail, as specified by the Contracting Officer, shall result in the disapproval of the schedule. The Contracting Officer will use the following conditions to determine the appropriate level of detail to be used in the Initial Project and Cluster Schedules:

3.4.2.1 Activity Durations

Contractor submissions shall follow the direction of the Contracting Officer regarding reasonable activity durations. Reasonable durations are those that allow the progress of activities to be accurately determined between payment periods (usually less than 2 percent of all non-procurement activities' Original Durations are greater than 20 days). The chronological order of the start of each major operation or segment of work will determine the vertical location of its bar on the chart. Provide bold vertical lines, at one-week intervals, with the consecutive numbering of each week on the horizontal time scale. Identify the first work day of each work item on the horizontal time scale.

3.4.2.2 Procurement Activities

Include tasks related to the procurement of long lead materials, equipment, or services as separate activities in the Initial Project Schedule. Long lead materials and equipment are materials that have a procurement cycle of over 90 days. Examples of procurement process activities include, but are not limited to: submittals, approvals, procurement, design, fabrication, and delivery.

3.4.2.3 Government Activities

Show government and other agency activities that could impact progress. These activities include approvals, business tenant relocations,

inspections, utility interruptions, government Furnished Equipment (GFE) and Notice to Proceed (NTP) for phasing requirements.

3.4.2.4 Responsibility

Identify all activities in the Initial Project and Cluster Schedules by the party responsible to perform the work. Responsibility includes the subcontracting firm, contractor work force, or government agency performing a given task. Activities shall not belong to more than one responsible party. Identify the responsible party for each activity by the Responsibility Code.

3.4.2.5 Work Areas

Identify all activities in the Initial Project and Cluster Schedules by the work area in which the activity occurs. Provide a separate horizontal bar for each work activity or operation. Activities shall not be allowed to cover more than one work area. Identify the work area of each activity by the Work Area Code.

3.4.2.6 Modification or Claim Number

Identify any activity that is added or changed by contract modification or used to justify claimed time by a mod or claim code that changed the activity. Activities shall not belong to more than one modification or claim item. Identify the modification or claim number of each activity by the Mod or Claim Number. Whenever possible, changes shall be added to the schedule by adding new activities. Existing activities shall not normally be changed to reflect modifications.

3.4.2.7 Work Breakdown Structure (WBS)

Identify all activities in the Initial Project and Cluster Schedules by the WBS to which the activity belongs.

3.4.2.8 Phase of Work

Identify all activities in the Initial Project and Cluster Schedules by the phases of work in which the activity occurs. Activities shall not contain work in more than one phase of work. The project phase of each activity shall be by the unique Phase of Work Code.

3.4.2.9 Category of Work

Identify all activities in the Initial Project and Cluster Schedules according to the category of work which best describes the activity. Category of work refers, but is not limited, to the procurement chain of activities including such items as submittals, approvals, procurement, excavation, transportation, disposal, restoration, fabrication, delivery, installation, start-up, and testing. Identify the category of work for each activity by the Category of Work Code.

3.4.2.10 Feature of Work

Identify all activities in the Initial Project and Cluster Schedules according to the feature of work to which the activity belongs. Feature of work refers, but is not limited to, a work breakdown structure for the project. Identify the feature of work for each activity by the Feature of Work Code.

3.4.3 Scheduled Project Completion

Extend the schedule interval from NTP to the contract completion date.

3.4.3.1 Project Start Date

Start the schedule no earlier than the date on which the NTP was acknowledged. Include as the first activity in the Initial Project and Cluster Schedules an activity called "Start Project". The "Start Project" activity shall have an "ES" constraint date equal to the date that the NTP was acknowledged, and a zero day duration.

3.4.3.2 Constraint of Last Activity

Completion of the last activity in the schedule shall be constrained by the contract completion date. Calculation on project updates shall be such that if the early finish of the last activity falls after the contract completion date, then the float calculation shall reflect a negative float on the critical path. Include as the last activity in the Initial Project and Cluster Schedules an activity called "End Project". The "End Project" activity shall have an "LF" constraint date equal to the completion date for the project, and a zero day duration.

3.4.3.3 Early Project Completion

In the event the Initial Project and Cluster Schedules show completion of the project prior to the contract completion date, identify those activities that have been accelerated and/or those activities that are scheduled in parallel to support the Contractor's "early" completion. Specifically address each of the activities noted in the narrative report at every Initial Project and Cluster Schedules update period to assist the Contracting Officer in evaluating the Contractor's ability to actually complete prior to the contract period.

3.4.4 Interim Completion Dates

Contractually specified interim completion dates shall also be constrained to show negative float if the early finish date of the last activity in that phase falls after the interim completion date.

3.4.4.1 Start Phase

Include as the first activity for a project phase an activity called "Start Phase X" where "X" refers to the phase of work. The "Start Phase X" activity shall have an "ES" constraint date equal to the date on which the NTP was acknowledged, and a zero day duration.

3.4.4.2 End Phase

Include as the last activity in a project phase an activity called "End Phase X" where "X" refers to the phase of work. The "End Phase X" activity shall have an "LF" constraint date equal to the completion date for the project, and a zero day duration.

3.4.4.3 Phase X

Include a hammock type activity for each project phase called "Phase X" where "X" refers to the phase of work. The "Phase X" activity shall be

logically tied to the earliest and latest activities in the phase.

3.4.5 Default Progress Data Disallowed

Do not automatically update actual start and finish dates by default mechanisms that may be included in CPM scheduling software systems. Actual Start and Finish dates on the CPM schedule shall match those dates provided from Contractor Quality Control Reports. Failure to document the Actual Start and Finish dates on the Daily Quality Control report for every in-progress or completed activity, and failure to ensure that the data contained on the Daily Quality Control reports is the sole basis for schedule updating shall result in the disapproval of the Contractor's schedule and the inability of the Contracting Officer to evaluate Contractor progress for payment purposes. Updating of the percent complete and the remaining duration of any activity shall be independent functions. Disable program features that calculate one of these parameters from the other.

3.4.6 Out-of-Sequence Progress

Activities that have posted progress without all preceding logic being satisfied (Out-of-Sequence Progress) will be allowed only on a case-by-case approval of the Contracting Officer. Propose logic corrections to eliminate all out of sequence progress or justify not changing the sequencing for approval prior to submitting an updated Initial Project and Cluster Schedules.

3.4.7 Negative Lags

Lag durations contained in the project schedule shall not have a negative value.

3.5 PERIODIC PROGRESS MEETINGS

Progress meetings to discuss payment shall include a monthly onsite meeting or other regular intervals mutually agreed to at the pre-work conference. During this meeting the Contractor shall describe, on an activity by activity basis, all proposed revisions and adjustments to the project schedule required to reflect the current status of the project. The Contracting Officer will approve activity progress, proposed revisions, and adjustments as appropriate.

3.5.1 Meeting Attendance

The Contractor's Project Manager and Scheduler shall attend the regular progress meeting.

3.5.2 Update Submission Following Progress Meeting

Submit a complete update of the project schedule containing all approved progress, revisions, and adjustments based on the regular progress meeting no later than four(4) working days after the monthly progress meeting.

3.5.3 Progress Meeting Contents

Updated information, including Actual Start Dates, Actual Finish Dates, Remaining Durations, and Cost-to-Date shall be subject to the approval of the Contracting Officer. As a minimum, address the following items on an activity by activity basis during each progress meeting.

3.5.3.1 Start and Finish Dates

The Actual Start and Actual Finish dates for each activity currently in-progress or completed.

3.5.3.2 Time Completion

The estimated Remaining Duration for each activity in-progress. Base time-based progress calculations on Remaining Duration for each activity.

3.5.3.3 Cost Completion

The earnings for each activity started. Payment will be based on earnings for each in-progress or completed activity. Payment for individual activities will not be made for work that contains quality defects. A portion of the overall project amount may be retained based on delays of activities.

3.5.3.4 Logic Changes

Identify and discuss all logic changes. This list includes, but it is not limited to:

- NTP on change orders;

- change orders to be incorporated into the schedule;

- contractor-proposed changes in work sequence;

- corrections to schedule logic for out-of-sequence progress;

- lag durations; and

- any other changes that have been made pursuant to contract provisions.

3.5.3.5 Other Changes

Other changes required due to delays in completion of any activity or group of activities include:

- delays beyond the Contractor's control, such as strikes and unusual weather;

- delays encountered due to submittals, government activities, deliveries or work stoppages which make re-planning the work necessary; and

- changes required to correct a schedule that does not represent the actual or planned prosecution and progress of the work.

Indicate progress of each activity to date of submission. Show changes occurring since previous submission of schedule, major changes in scope or quantities (if any), activities modified since previous submission, and revised projections of progress and completion.

3.6 REQUESTS FOR TIME EXTENSIONS

Furnish the following for a determination whether an extension of time is

warranted: justification, project schedule data, and supporting evidence as the Contracting Officer may deem necessary. Submission of proof of delay, based on revised activity logic, duration, and costs (updated to the specific date that the delay occurred) shall also be provided.

3.6.1 Justification of Delay

The project schedule shall clearly display that the Contractor has used, in full, all the float time available for the work involved with this request.

The Contracting Officer's determination as to the number of allowable days of contract extension shall be based upon the project schedule updates in effect for the time period in question, and other factual information. Actual delays that are found to be caused by the Contractor's own actions, which result in the extension of the schedule, will not be a cause for a time extension to the contract completion date.

3.6.2 Submission Requirements

Submit a justification for each request for a change in the contract completion date of under 2 weeks based upon the most recent schedule update at the time of the NTP or constructive direction issued for the change. Such a request shall be in accordance with the requirements of other appropriate Contract Clauses and shall include, as a minimum:

- a. A list of affected activities, with their associated project schedule activity number.
- b. A brief explanation of the causes of the change.
- c. An analysis of the overall impact of the changes proposed.
- d. A sub-network of the affected area.

Identify activities impacted in each justification for change by a unique activity code contained in the required data file.

3.6.3 Additional Submission Requirements

For any requested time extension of over 2 weeks, the Contracting Officer may request an interim update with revised activities for a specific change request. Provide this disk within 4 days of the Contracting Officer's request.

3.7 DIRECTED CHANGES

If the NTP is issued for changes prior to settlement of price, fee and/or time, submit proposed schedule revisions to the Contracting Officer within two (2) weeks of the NTP being issued. The proposed revisions to the schedule will be approved by the Contracting Officer prior to inclusion of those changes within the project schedule. If the Contractor fails to submit the proposed revisions, the Contracting Officer may furnish the Contractor with suggested revisions to the project schedule. Include these revisions in the project schedule until revisions are submitted, and final changes and impacts have been negotiated. If the Contractor has any objections to the revisions furnished by the Contracting Officer, the Contractor shall advise the Contracting Officer within two (2) weeks of receipt of the revisions. Regardless of the objections, continue to update the schedule with the Contracting Officer's revisions until a mutual agreement in the revisions is reached. If the Contractor fails to submit

alternative revisions within 2 weeks of receipt of the Contracting Officer's proposed revisions, the Contractor will be deemed to have concurred with the Contracting Officer's proposed revisions. The proposed revisions will then be the basis for an equitable adjustment for performance of the work.

3.8 OWNERSHIP OF FLOAT

Float available in the schedule, at any time, shall not be considered for exclusive use of either the Government or the Contractor.

-- End of Section --

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 DEFINITIONS

1.1.1 Submittal

Contract Clauses "FAR 52.236-5, Material and Workmanship," paragraph (b) and "FAR 52.236-21, Specifications and Drawings for Construction," paragraphs (d), (e), and (f) apply to all "submittals."

1.1.2 Submittal Descriptions (SD)

Submittal requirements are specified in the technical sections. Submittals are identified by SD numbers and titles as follows.

SD-01 Preconstruction Submittals

- Certificates of insurance.
- Surety bonds.
- List of proposed subcontractors.
- List of proposed products.
- Construction Progress Schedule.
- Submittal register.
- Schedule of prices.
- Health and safety plan.
- Work plan.
- Quality control plan.
- Environmental protection plan.

SD-02 Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the Contractor for integrating the product or system into the project.

Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will be coordinated.

SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials or equipment for some portion of the work.

Samples of warranty language when the contract requires extended product warranties.

SD-04 Samples

Physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged.

Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.

Field samples and mock-ups constructed on the project site establish standards by which the ensuring work can be judged. Includes assemblies or portions of assemblies which are to be incorporated into the project and those which will be removed at conclusion of the work.

SD-05 Design Data

Calculations, mix designs, analyses or other data pertaining to a part of work.

SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. (Testing must have been within three years of date of contract award for the project.)

Report which includes findings of a test required to be performed by the Contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.

Investigation reports.

Daily checklists.

Final acceptance test and operational test procedure.

SD-07 Certificates

Statements printed on the manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a supplier, installer or subcontractor through Contractor, the purpose of which is to further quality of orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications.

Confined space entry permits.

Text of posted operating instructions.

SD-08 Manufacturer's Instructions

Preprinted material describing installation of a product, system or material, including special notices and Material Safety Data sheets concerning impedances, hazards and safety precautions.

SD-09 Manufacturer's Field Reports

Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

Factory test reports.

SD-10 Operation and Maintenance Data

Data that is furnished by the manufacturer, or the system provider, to the equipment operating and maintenance personnel. This data is needed by operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item.

SD-11 Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

1.1.3 Approving Authority

Office authorized to approve submittal.

1.1.4 Work

As used in this section, on- and off-site construction required by contract documents, including labor necessary to produce submittals, construction, materials, products, equipment, and systems incorporated or to be incorporated in such construction.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.

1.3 USE OF SUBMITTAL REGISTER

Submittal registers shall be developed for each of the clusters. The Contractor shall provide, at a minimum, the submittals indicated in the submittal register prepared for each phase of work. The submittal register is included at the end of this section.

Contractor shall complete the following columns of the Submittal Register:

- a. Activity No.
- b. Transmittal No.
- g. Contractor: Schedule Dates - Submit
- h. Contractor: Schedule Dates - Approval Needed By
- i. Contractor: Schedule Dates - Material Needed By
- j. Contractor Action - Action Code

- k. Contractor Action - Date of Action
- l. Date Fwd to Approving Authority

1.4 PROCEDURES FOR SUBMITTALS

1.4.1 Reviewing, Certifying, Approving Authority

QC organization shall be responsible for reviewing and certifying that submittals are in compliance with contract requirements. Approving authority on submittals is QC manager unless otherwise specified for specific submittal. At each "Submittal" paragraph in individual specification sections, a notation "G," following a submittal item, indicates Contracting Officer is approving authority for that submittal item.

1.4.2 Constraints

- a. Submittals listed or specified in this contract shall conform to provisions of this section, unless explicitly stated otherwise.
- b. Submittals shall be complete for each definable feature of work; components of definable feature interrelated as a system shall be submitted at same time.
- c. When acceptability of a submittal is dependent on conditions, items, or materials included in separate subsequent submittals, submittal will be returned without review.
- d. Approval of a separate material, product, or component does not imply approval of assembly in which item functions.

1.4.3 Scheduling

- a. Coordinate scheduling, sequencing, preparing and processing of submittals with performance of work so that work will not be delayed by submittal processing. Allow for potential requirements to resubmit.
- b. Except as specified otherwise, allow review period, beginning with receipt by approving authority, that includes at least 15 working days for submittals for QC Manager approval and 20 working days for submittals for Contracting Officer approval. Period of review for submittals with Contracting Officer approval begins when Government receives submittal from QC organization. Period of review for each resubmittal is the same as for initial submittal.

1.4.4 Variations

Variations from contract requirements require Government approval pursuant to contract Clause entitled "FAR 52.236-21, Specifications and Drawings for Construction" and will be considered where advantageous to Government.

1.4.4.1 Considering Variations

Discussion with Contracting Officer prior to submission, will help ensure functional and quality requirements are met and minimize rejections and resubmittals.

1.4.4.2 Proposing Variations

When proposing variation, deliver written request to the Contracting Officer, with documentation of the nature and features of the variation and why the variation is desirable and beneficial to Government. If lower cost is a benefit, also include an estimate of the cost saving. In addition to documentation required for variation, include the submittals required for the item. Clearly mark the proposed variation in all documentation.

1.4.4.3 Warranting That Variations Are Compatible

When delivering a variation for approval, Contractor warrants that this contract has been reviewed to establish that the variation, if incorporated, will be compatible with other elements of work.

1.4.4.4 Review Schedule Is Modified

In addition to normal submittal review period, a period of 10 working days will be allowed for consideration by the Government of submittals with variations.

1.4.5 Disapproved Submittals

The Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. If the contractor considers any correction indicated on the submittals to constitute a change to the Contract, a notice in accordance with the Contract Clause "Changes" shall be given promptly to the Contracting Officer.

CAUTION: The Contractor is cautioned that for each Contractor's resubmittal required beyond the initial submittal and one resubmittal for corrections required by the Contracting Officer, the Contracting Officer will assess Administrative Deduction in the amount of \$500.00 from the progress payments due the Contractor.

1.4.6 Contractor's Responsibilities

The Contractor shall review shop drawings, product data and samples prior to submission to determine and verify the following:

- a. Field measurements
- b. Field construction criteria

The review and approval of shop drawings or samples by the Contracting Officer shall not relieve the Contractor from its responsibility with regard to the fulfillment of the terms of the contract. All risks of error and omission are assigned and assumed by the Contractor and the Contracting Officer will have no responsibility.

No portion of the work requiring a shop drawing, working drawings, sample, or catalog data shall be started nor shall any materials be fabricated, installed or used on the sites prior to the approval of the Contracting Officer. Fabrication performed, materials purchased or on-site construction accomplished which does not conform to approved shop drawings and data shall be at the Contractor's risk. The Contracting Officer will not be liable for any expense for delay due to corrections or remedies required to accomplish conformity.

Project work, materials, fabrication and installation shall conform to approved shop drawings, working drawings, applicable samples and catalog data.

Contractor's responsibilities shall also include the following:

- a. Determine and verify field measurements, materials, field construction criteria; review each submittal; and check and coordinate each submittal with requirements of the work and contract documents.
- b. Transmit submittals to QC organization in accordance with schedule on approved Submittal Register, and to prevent delays in the work, delays to Government, or delays to separate Contractors.
- c. Advise Contracting Officer of variation, as required by paragraph entitled "Variations."
- d. Correct and resubmit submittal as directed by approving authority. When resubmitting disapproved transmittals or transmittals noted for resubmittal, the Contractor shall provide copy of that previously submitted transmittal including all reviewer comments for use by approving authority. Direct specific attention in writing or on resubmitted submittal, to revisions not requested by approving authority on previous submissions.
- e. Furnish additional copies of submittal when requested by Contracting Officer, to a limit of 20 copies per submittal.
- f. Complete work which must be accomplished as basis of a submittal in time to allow submittal to occur as scheduled.
- g. Ensure no work has begun until submittals for that work have been returned as "approved," or "approved as noted", except to the extent that a portion of work must be accomplished as basis of submittal.

1.4.7 QC Organization Responsibilities

- a. Note date on which submittal was received from Contractor on each submittal.
- b. Review each submittal; and check and coordinate each submittal with requirements of work and contract documents.
- c. Review submittals for conformance with project design concepts and compliance with contract documents.
- d. Act on submittals, determining appropriate action based on QC organization's review of submittal.

(1) When QC manager is approving authority, take appropriate action on submittal from the possible actions defined in paragraph entitled, "Actions Possible."

(2) When Contracting Officer is approving authority or when variation has been proposed, forward submittal to Government with certifying statement or return submittal marked "not reviewed" or "revise and resubmit" as appropriate. The QC organization's

review of submittal determines appropriate action.

- e. Ensure that material is clearly legible.
- f. Stamp each sheet of each submittal with QC certifying statement or approving statement, except that data submitted in bound volume or on one sheet printed on two sides may be stamped on the front of the first sheet only.

(1) When approving authority is Contracting Officer, QC organization will certify submittals forwarded to Contracting Officer with the following certifying statement:

"I hereby certify that the (equipment) (material) (article) shown and marked in this submittal is that proposed to be incorporated with contract Number [____], is in compliance with the contract drawings and specification, can be installed in the allocated spaces, and is submitted for Government approval.

Certified by Submittal Reviewer _____, Date _____
(Signature when applicable)

Certified by QC Manager _____, Date _____"
(Signature)

(2) When approving authority is QC Manager, QC Manager will use the following approval statement when returning submittals to Contractor as "Approved" or "Approved as Noted."

"I hereby certify that the (material) (equipment) (article) shown and marked in this submittal and proposed to be incorporated with contract Number [____], is in compliance with the contract drawings and specification, can be installed in the allocated spaces, and is _____ approved for use.

Certified by Submittal Reviewer _____, Date _____
(Signature when applicable)

Approved by QC Manager _____, Date _____"
(Signature)

- g. Sign certifying statement or approval statement. The person signing certifying statements shall be QC organization member designated in the approved QC plan. The signatures shall be in original ink. Stamped signatures are not acceptable.
- h. Update submittal register as submittal actions occur and maintain the submittal register at project site until final acceptance of all work by Contracting Officer.
- i. Retain a copy of approved submittals at project site, including Contractor's copy of approved samples.

1.4.8 Government's Actions

When the approving authority is the Contracting Officer, the Government will return the submittal with the ENG 4025 form discussed below with appropriate actions possible.

1.5 FORMAT OF SUBMITTALS

1.5.1 Transmittal Form

Transmit each submittal, except sample installations and sample panels, to office of approving authority. Transmit submittals with transmittal form prescribed by Contracting Officer and standard for project. The transmittal form shall identify Contractor, indicate date of submittal, and include information prescribed by transmittal form and required in paragraph entitled "Identifying Submittals." Process transmittal forms to record actions regarding sample panels and sample installations.

1.5.2 Identifying Submittals

Identify submittals, except sample panel and sample installation, with the following information permanently adhered to or noted on each separate component of each submittal and noted on transmittal form. Mark each copy of each submittal identically, with the following:

- a. Project title and location.
- b. Construction contract number.
- c. Section number of the specification section by which submittal is required.
- d. Submittal description (SD) number of each component of submittal.
- e. When a resubmission, add alphabetic suffix on submittal description, for example, SD-10A, to indicate resubmission.
- f. Name, address, and telephone number of subcontractor, supplier, manufacturer and any other second tier Contractor associated with submittal.
- g. Product identification and location in project.

1.5.3 Format for SD-02 Shop Drawings

- a. Shop drawings shall not be less than 8 1/2 by 11 inches nor more than 30 by 42 inches.
- b. Present 8 1/2 by 11 inches sized shop drawings as part of the bound volume for submittals required by section. Present larger drawings in sets.
- c. Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to information required in paragraph entitled "Identifying Submittals."
- d. Dimension drawings, except diagrams and schematic drawings; prepare drawings demonstrating interface with other trades to scale. Shop drawing dimensions shall be the same unit of measure as indicated on the contract drawings. Identify materials and products for work shown.
- e. Drawings shall include the nameplate data, size and capacity. Also include applicable federal, military, industry and technical society publication references.

1.5.4 Format of SD-03 Product Data and SD-08 Manufacturer's Instruction's

- a. Present product data submittals for each section as a complete, bound volume. Include table of contents, listing page and catalog item numbers for product data.
- b. Indicate, by prominent notation, each product which is being submitted; indicate specification section number and paragraph number to which it pertains.
- c. Supplement product data with material prepared for project to satisfy submittal requirements for which product data does not exist. Identify this material as developed specifically for project, with information and format as required for submission of SD-07 Certificates..
- e. Product data shall include the manufacturer's name, trade name, place of manufacture, and catalog model or number. Submittals shall also include applicable federal, military, industry and technical society publication references. Should manufacturer's data require supplemental information for clarification, the supplemental information shall be submitted as specified for SD-07 Certificates.
- f. Where equipment or materials are specified to conform to industry and technical society reference standards of the organizations such as American National Standards Institute (ANSI), ASTM International (ASTM), National Electrical Manufacturer's Association (NEMA), Underwriters Laboratories (UL), and Association of Edison Illuminating Companies (AEIC), submit proof of such compliance. The label or listing by the specified organization will be acceptable evidence of compliance. In lieu of the label or listing, submit a certificate from an independent testing organization, competent to perform testing, and approved by the Contracting Officer. The certificate shall state that the item has been tested in accordance with the specified organization's test methods and that the item complies with the specified organization's reference standard.
- g. Submit manufacturer's instruction prior to installation.

1.5.5 Format of SD-04 Samples

- a. Furnish samples in sizes below, unless otherwise specified or unless the manufacturer has prepackaged samples of approximately same size as specified:
 - (1) Sample of Equipment or Device: Full size.
 - (2) Sample of Materials Less Than 2 by 3 inches: Built up to 8 1/2 by 11 inches.
 - (3) Sample of Materials Exceeding 8 1/2 by 11 inches: Cut down to 8 1/2 by 11 inches and adequate to indicate color, texture, and material variations.
 - (4) Sample of Linear Devices or Materials: 10 inch length or length to be supplied, if less than 10 inches. Examples of linear

devices or materials are conduit and handrails.

(5) Sample of Non-Solid Materials: Pint. Examples of non-solid materials are sand and paint.

(6) Color Selection Samples: 2 by 4 inches.

(7) Sample Panel: 4 by 4 feet.

(8) Sample Installation: 100 square feet.

- b. Samples Showing Range of Variation: Where variations are unavoidable due to nature of the materials, submit sets of samples of not less than three units showing extremes and middle of range.
- c. Reusable Samples: Incorporate returned samples into work only if so specified or indicated. Incorporated samples shall be in undamaged condition at time of use.
- d. Recording of Sample Installation: Note and preserve the notation of area constituting sample installation but remove notation at final clean up of project.
- e. When color, texture or pattern is specified by naming a particular manufacturer and style, include one sample of that manufacturer and style, for comparison.

1.5.6 Format of SD-05 Design Data and SD-07 Certificates

- a. Provide design data and certificates on 8 1/2 by 11 inches paper. Provide a bound volume for submittals containing numerous pages.

1.5.7 Format of SD-06 Test Reports and SD-09 Manufacturer's Field Reports

- a. Provide reports on 8 1/2 by 11 inches paper in a complete bound volume.
- b. Indicate by prominent notation, each report in the submittal. Indicate specification number and paragraph number to which it pertains.

1.5.8 Format of SD-10 Operation and Maintenance (O&M) Data

- a. O&M Data format shall comply with the requirements specified in Section 01781, Operation and Maintenance Data"

1.5.9 Format of SD-01 Preconstruction Submittals and SD-11 Closeout Submittals

- a. When submittal includes a document which is to be used in project or become part of project record, other than as a submittal, do not apply Contractor's approval stamp to document, but to a separate sheet accompanying document.

1.6 QUANTITY OF SUBMITTALS

1.6.1 Number of Copies of SD-02 Shop Drawings

- a. Submit six copies of submittals of shop drawings requiring review

and approval only by QC organization and seven copies of shop drawings requiring review and approval by Contracting Officer.

1.6.2 Number of Copies of SD-03 Product Data and SD-08 Manufacturer's Instructions

Submit in compliance with quantity requirements specified for shop drawings.

1.6.3 SD-04 Number of Samples

- a. Submit two samples, or two sets of samples showing range of variation, of each required item. One approved sample or set of samples will be retained by approving authority and one will be returned to Contractor.
- b. Submit one sample panel. Include components listed in technical section or as directed.
- c. Submit one sample installation, where directed.
- d. Submit one sample of non-solid materials.

1.6.4 Number of Copies SD-05 Design Data and SD-07 Certificates

- a. Submit in compliance with quantity requirements specified for shop drawings.

1.6.5 Number of Copies SD-06 Test Reports and SD-09 Manufacturer's Field Reports

- a. Submit in compliance with quantity with quality requirements specified for shop drawings.

1.6.6 Number of Copies of SD-10 Operation and Maintenance Data

Submit Five copies of O&M Data to the Contracting Officer for review and approval

1.6.7 Number of Copies of SD-01 Preconstruction Submittals and SD-11 Closeout Submittals

- a. Unless otherwise specified, submit administrative submittals compliance with quantity requirements specified for shop drawings.

1.7 FORWARDING SUBMITTALS

1.7.1 Submittals Required from the Contractor

As soon as practicable after award of contract, and before procurement of fabrication, forward to the Contracting Officer submittals required in the technical sections of this specification, including shop drawings, product data and samples.

The Contracting Officer for this project will review and approve for the Government those submittals reserved for Government approval to verify submittals comply with the contract requirements.

1.7.1.1 O&M Data

The Contracting Officer will review and approve all O&M Data to verify the submittals comply with the contract requirements. Submit data specified for a given item within 30 calendar days after the item is delivered to the contract site.

- a. In the event the Contractor fails to deliver O&M Data within the time limits specified, the Contracting Officer may withhold from progress payments 50 percent of the price of the item with which such O&M Data are applicable.

1.8 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.8.1 Designer of Record Approved

Designer of Record approval is required for extensions of design, critical materials, any deviations from the solicitation, the accepted proposal, or the completed design, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction", they are considered to be "shop drawings". The Contractor shall provide the Government the number of copies designated hereinafter of all Designer of Record approved submittals. The Government may review any or all Designer of Record approved submittals for conformance to the Solicitation and Accepted Proposal. The Government will review all submittals designated as deviating from the Solicitation or Accepted Proposal, as described below. Generally, design submittals should be identified as SD-05 DESIGN DATA submittals.

1.8.2 Government Approved

Government approval is required for extensions of design, critical materials, deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Government approval is required for any deviations from the Solicitation or Accepted Proposal and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

1.8.3 Government Reviewed Design or Extension of Design

The Government will review all design submittals for conformance with the technical requirements of the solicitation. Government review is required for extension of design construction submittals, used to define contract conformity, and for deviation from the completed design. Review will be only for conformance with the contract requirements. Included are only those construction submittals for which the Designer of Record design documents do not include enough detail to ascertain contract compliance. The Government may, but is not required, to review extensions of design such as structural steel or reinforcement shop drawings.

1.8.4 Information Only

All submittals not requiring Government approval will be for information only. All submittals not requiring Designer of Record or Government approval will be for information only. They are not considered to be "shop

drawings" within the terms of the Contract Clause referred to above. All submittals not requiring Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above.

1.9 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory and that design, general method of construction, materials, detailing and other information appear to meet the Solicitation and Accepted Proposal. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Contractor Quality Control (CQC) requirements of this contract is responsible for design of adequate connections and details, and the satisfactory construction of all work. After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.10 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. The Contractor shall make all corrections required by the Contracting Officer, obtain the Designer of Record's approval when applicable, and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. Any "information only" submittal found to contain errors or unapproved deviations from the Solicitation or Accepted Proposal shall be resubmitted as one requiring "approval" action, requiring both Designer of Record and Government approval. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, a notice in accordance with the Contract Clause "Changes" shall be given promptly to the Contracting Officer.

1.11 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained. No payment for materials incorporated in the work will be made if all required Designer of Record or required Government approvals have not been obtained. No payment will be made for any materials incorporated into the work for any conformance review submittals or information only submittals found to contain errors or deviations from the Solicitation or Accepted Proposal.

1.12 GENERAL

The Contractor shall make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control System Manager (CQCSM) and the Designer of Record, if applicable, and each item shall be stamped, signed, and dated by the CQC

System Manager indicating action taken. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

1.13 SUBMITTAL REGISTER

Per paragraph 1.3, Contractor shall provide, at a minimum, submittals indicated per the "Submittal Register" for each cluster.

1.14 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 15 calendar days exclusive of mailing time) shall be allowed for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals.

1.15 TRANSMITTAL FORM (ENG FORM 4025)

The sample transmittal form (ENG Form 4025) attached to this section shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor. This form shall be properly completed by filling out the heading blank spaces and identifying each individual item in the submittal package with a full description as indicated in the headings on the form. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

1.16 SUBMITTAL PROCEDURES

Submittals shall be made as follows:

1.16.1 Procedures

The Government will further discuss detailed submittal procedures with the Contractor at the Preconstruction Conference.

1.16.2 Deviations

For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG Form 4025 shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

1.17 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

1.18 GOVERNMENT APPROVED SUBMITTALS

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. 4 copies of the submittal will be retained by the Contracting Officer and 2 copies of the submittal will be returned to the Contractor. If the Government performs a conformance review of other Designer of Record approved submittals, the submittals will be so identified and returned, as described above.

1.19 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe. For design-build construction the Government will retain 2 copies of information only submittals.

1.20 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

CONTRACTOR
(Firm Name)
_____ Approved
_____ Approved with corrections as noted on submittal data and/or attached sheets(s).
SIGNATURE: _____
TITLE: _____
DATE: _____

For design-build construction, both the Contractor Quality Control System Manager and the Designer of Record shall stamp and sign to certify that the submittal meets contract requirements.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION Cornell-Dubilier Electronics Superfund Site - OU2						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	GOVT OR CLASSIFICATION REVIEW	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		DATE FWD TO APPR AUTH/	APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01110	SD-01 Preconstruction Submittals														
			Pest and Rodent Control Plan	1.9													
		01140	SD-01 Preconstruction Submittals														
			Name and experience of the Project Manager	1.2	G												
			List of Contact Personnel	1.5.1.1	G												
		01201	SD-11 Closeout Submittals														
			Pre-Construction Conference Meeting Minutes	3.1	G A/E												
			Pre-Work Conference Meeting Minutes	3.1	G A/E												
			Pre-Construction Quality Control Conference Meeting Minutes	3.1	G A/E												
			Pre-Construction Safety Conference Meeting Minutes	3.1	G A/E												
		01202	SD-11 Closeout Submittals														
			Project Progress Meeting Minutes	3.2	G												
		01320	SD-01 Preconstruction Submittals														
			Preliminary Project Schedule	3.3	G												
			Initial Project and Cluster Schedules	3.4	G												
			Periodic Schedule Update	1.3	G												
		01351	SD-01 Preconstruction Submittals														
			Name of the Contractor's Site Safety and Health Officer	1.9.3	G												

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		01351	Certificate Numbers of the Contractor's Safety and Health Manager	1.9.3													
			Site Safety and Health Plan (SSHP)	1.6	G												
			Air Monitoring Plan	1.14.1	G												
			Spill Prevention and Control Plan	1.16	G												
			Dust Control Plan	1.37	G												
			Health and Safety Training Documentation	1.11													
			SD-02 Shop Drawings														
			Work Zones	1.28.1	G A/E												
			Decontamination Facilities	1.29.1	G A/E												
			SD-03 Product Data														
			Exposure Monitoring/Air Sampling Program	1.14.1													
			Site Control Log	1.28.2													
			Employee Certificates	1.13.6													
			SD-06 Test Reports														
			Weekly Safety Reports	1.9.3.2	G												
			Accident Reports	1.9.3.2	G												
			Daily Safety Inspection Log	1.9.3.2													
			SD-08 Manufacturer's Instructions														
			Medical Certifications	1.8													
			Training certificates	1.8													
			Respirator Fit-Test Certificates	1.8													

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		01351	List of Field Personnel	1.8													
			Safety and Health Phase-Out Report	1.38	G												
		01356A	SD-01 Preconstruction Submittals														
			Soil Erosion and Sediment Control Plan	1.4	G												
			SD-07 Certificates														
			Mill Certificate or Affidavit	2.1.3													
		01380	SD-11 Closeout Submittals														
			Pre-Construction and Post Construction Photographs	1.2.1	G												
			Progress Photographs	1.2.2													
		01381	SD-11 Closeout Submittals														
			Pre-Construction, Progress and Post-Construction Video	1.2.1													
		01450A	SD-01 Preconstruction Submittals														
			Sampling and Analysis Plan	3.2.1	G												
			SD-06 Test Reports														
			Chemical Data Packages	3.4	G												
			Daily Chemical Quality Control Reports	3.6													
			Quality Control Summary Report	3.4	G												
		01451A	SD-01 Preconstruction Submittals														
			Contractor Quality Control (CQC) Plan	3.2	G												
			SD-06 Test Reports														

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		01451A	Daily CQC Reports	3.7.1													
		01500A	SD-01 Preconstruction Submittals														
			Temporary Site Facilities Layout Plan	1.1.1	G A/E												
			Trailer's Floor Plan	1.1.1	G A/E												
			Electrical Supply and Lighting Shop Drawings	1.3.1	G A/E												
			Water Supply, Contaminated Washwater Handling and Sanitary Facilities	1.3.1	G A/E												
		01525	SD-01 Preconstruction Submittals														
			Accident Prevention Plan (APP)	1.8	G												
			Activity Hazard Analysis (AHA)	1.9	G												
			Lead Compliance Plan	1.8.1	G												
			SD-06 Test Reports														
			Monthly Exposure Reports	1.14.2	G												
			Accident Reports	1.14.1	G												
			Regulatory Citations and Violations														
			Contractor Safety Self-Evaluation Checklist	1.5													
			SD-07 Certificates														
			Confined Space Entry Permit	1.11													
			Hot Work Permit	1.11													
		01540	SD-01 Preconstruction Submittals														
			Security Plan	3.2	G A/E												

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		01550	SD-04 Samples														
			Initial Site Drawings	3.3.1	G A/E												
			Record Topographic Maps	3.3.2	G A/E												
			SD-07 Certificates														
			Surveyor Elevation/Location	1.3	G A/E												
			Certifications														
			SD-11 Closeout Submittals														
			Surveyor Field Notes Data	3.6	G A/E												
			Surveyor in Place Volume	3.6	G A/E												
			Calculations For Aggregate Base														
			And Backfill Material														
		01580	SD-02 Shop Drawings														
			Preliminary one line	1.4.1.1	G A/E												
			Preliminary drawing indicating		G A/E												
			layout and text content														
			SD-04 Samples														
			Final rendering	1.4.1.2	G												
			Final framed rendering	1.4.1.3	G												
		01700	SD-11 Closeout Submittals														
			Remedial Unit Closeout	3.1	G												
			Information														
			Record Drawings	1.3.1	G A/E												
		02212	SD-01 Preconstruction Submittals														
			Drummed and Hazardous	3.1.1.1	G												
			Materials Handling Plan														
			SD-07 Certificates														

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		02212	Qualifications		G												
			Certificates of Disposal	3.4.3													
			Shipping Documents and	3.4.3													
			Packagings Certification														
			SD-11 Closeout Submittals														
			Receipts														
		02220	SD-07 Certificates														
			Demolition Plan	3.3	G												
			Notifications	1.5.1	G												
			SD-08 Manufacturer's Instructions														
			Pre-Demolition Survey	3.3													
			SD-11 Closeout Submittals														
			Receipts														
		02310	SD-01 Preconstruction Submittals														
			Excavation Support System Plan	1.8	G A/E												
			Excavation Schedule	1.5	G												
			Dewatering Work Plan	1.9	G												
			Excavation and Material Handling	1.7	G												
			Plan														
			SD-03 Product Data														
			Notification of Opening of any	3.2													
			Excavation														
			SD-06 Test Reports														
			Field Measurement Data	1.6	G												
		02320	SD-06 Test Reports														
			Testing	3.7	G A/E												

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		02320	Borrow Site Testing	3.7.3	G A/E												
			Off-Site Soils Chemical Testing	2.1	G A/E												
			SD-07 Certificates														
			Commercial Testing Laboratory	3.7													
			Qualifications														
		02350	SD-01 Preconstruction Submittals														
			Waste Management Plan and	3.1.2	G A/E												
			Addendum														
			Security Plan for Hazardous	3.2.5.1	G												
			Materials Shipments														
			Traffic Control Plan	3.2.2	G												
			Notices of Non-Compliance and	3.2													
			Notices of Violation														
			Hazardous Waste Manifest	3.1.1	G												
			EPA Form 8700-12, Notification	3.2.3	G												
			of Hazardous Waste Activity														
			SD-06 Test Reports														
			Hazardous Waste Manifest	3.3.1													
			Annual and/or Biennial Reports														
			State Reporting Requirements	1.5	G												
			Transportation and Disposal	3.3.1													
			Tracking Form														
			Discrepancy Reports	3.3.1													
			Exception Reports	3.3.1													
			Toxic Substance Control Act PCB	3.3.1	G												
			Reporting Requirements														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION Cornell-Dubilier Electronics Superfund Site - OU2						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	GOVT OR CLASS SIFIC ATION REVIEW	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION		DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		02350	Final Disposal Report	1.5	G												
			Final Disposal Report	3.3.1	G												
			SD-07 Certificates														
			Qualifications	1.4	G												
			Regulatory specialist and transportation and disposal coordinator	1.4.1	G												
			Off-Site Policy Compliance Certification	1.4.3													
			Certificates of Disposal	3.2.4													
			Shipping Documents and Packagings Certification	3.2.4													
		02373	SD-04 Samples														
			Manufacturing Quality Control Sampling And Testing	2.2													
			Quality Assurance Samples and Tests	3.1													
			SD-07 Certificates														
			Geotextile	2.1.1													
		02650	SD-03 Product Data														
			Storage Tank Handling Plan	1.7	G												
			Qualifications	1.4	G												
			Salvage Rights	3.14.4													
			SD-06 Test Reports														
			Backfill Material	2.1	G A/E												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION Cornell-Dubilier Electronics Superfund Site - OU2						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	GOVT OR CLASSIFICATION REVIEW	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		DATE FWD TO APPR AUTH/	APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		02650	Tank Sampling And Analytical Program	3.2													
			Tank Contents Verification	3.5.1	G												
			Contaminated Water Disposal	3.4.2	G												
			Soil Examination, Testing, and Analysis	3.12	G A/E												
			Backfilling	3.13	G												
			Tank Closure Report	3.16													
		02742	SD-05 Design Data														
			Mix Design	1.4.1	G A/E												
			SD-06 Test Reports														
			Specific gravity of asphalt	3.7.1.5													
			Specific gravity of mineral filler	3.7.1.4													
			Aggregates tests	3.7.2.1													
			Bituminous Mix Tests	3.7.2.2													
			Pavement Courses Testing	3.7.2.3													
		02821A	SD-07 Certificates														
			Chain Link Fence	2.1.1													
		13280A	SD-02 Shop Drawings														
			Detailed Drawings	1.4	G A/E												
			SD-03 Product Data														
			Asbestos Waste Shipment	3.11.5.1	G												
			Records														
			Weight Bills and Delivery Tickets	3.11.4	G												
			Encapsulants	2.1	G												
			Respiratory Protection Program	1.12	G												

SUBMITTAL REGISTER

CONTRACT NO.

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ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	GOVT OR CLASSIFICATION REVIEW	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		DATE FWD TO APPR AUTH/	APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION		DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		13280A	Cleanup and Disposal	3.11	G												
			Qualifications	1.5	G												
			Training Program	1.11													
			Licenses, Permits and	1.13	G												
			Notifications														
			SD-06 Test Reports														
			Exposure Assessment and Air	3.9	G												
			Monitoring														
			Local Exhaust System	1.19													
			SD-07 Certificates														
			Local Exhaust System	1.19													
			Encapsulants	2.1	G												
			Medical Surveillance	1.10													
			Requirements														
		13284	SD-07 Certificates														
			Training certification	1.7.1													
			Qualifications of CIH	1.7.2													
			PCB Removal Work Plan	1.7.3													
			PCB Disposal Plan	1.7.4													
			Notification	1.7.5													
			Transporter certification	3.8													
			Certification of Decontamination	3.5.4													
			Post cleanup sampling	3.5.5													
			Certificate of disposal	3.8.1													
		13285	SD-03 Product Data														
			Field Screening Test	2.2													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION Cornell-Dubilier Electronics Superfund Site - OU2						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	GOVT OR CLASSIFICATION REVIEW	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		13285	SD-07 Certificates														
			PCB Protection Plan	1.4.4	G A/E												
			PCB-Contaminated Soil and Concrete Removal Plan	1.4.5	G A/E												
			PCB-Contaminated Water Handling Plan	1.4.6	G A/E												
			PCB Sampling and Testing Plan	1.4.7	G A/E												
			Training certification	1.4.8													
			CIH qualifications	1.4.9	G A/E												
			PCB-Contaminated Soil and Concrete Disposal Plan	1.4.10	G A/E												
			Shipping documentation														
			Vehicle decontamination verification	1.4.11													
			Borrow site testing	3.9													
			Certificates of Disposal	1.4.12													
			SD-11 Closeout Submittals														
			Closeout Report	1.4.12	G A/E												
		13286	SD-07 Certificates														
			Qualifications of CIH	1.8.1	G AE												
			Training Certification	1.8.1	G AE												
			PCB and Lamp Removal Work Plan	1.8.2	G AE												
			PCB and Lamp Disposal Plan	1.8.3	G AE												
			SD-11 Closeout Submittals														
			Transporter certification	3.5.2	G												

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SECTION 01351

SAFETY, HEALTH, AND EMERGENCY RESPONSE (HTRW/UST)

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)

ACGIH-02 (1996) Chemical Substances and Physical Agents and Biological Exposure Indices

ACGIH TLVs/BEIs (2006) TLVs and BEIs

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z87.1 (2003) Standard for Occupational and Educational Eye and Face Protection

ANSI Z89.1 (2003) Requirements for Industrial Head Protection

AMERICAN PETROLEUM INSTITUTE (API)

API PUBL 2219 (1999) Safe Operation of Vacuum Trucks in Petroleum Service

API RP 1604 (1996; R 2001) Closure of Underground Petroleum Storage Tanks

API Std 2015 (2001) Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

NIOSH METHOD 7105 (1994) NIOSH Manual of Analytical Methods (NMAM)

NIOSH 85-115 (1985) Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2003) Safety and Health Requirements Manual

ER 385-1-92 (2003) Safety - Safety and Occupational Health Document Requirements for Hazardous, Toxic, and Radioactive Waste (HTRW) and Ordnance and Explosive Waste

(OEWS) Activities

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA (NAAQS)	Air Quality Guidelines - National Ambient Air Quality Standards (NAAQS)
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U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1904	Recording and Reporting Occupational Injuries and Illnesses
29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1910.120	Hazardous Waste Operations and Emergency Response
29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1926.65	Hazardous Waste Operations and Emergency Response
49 CFR 171	General Information, Regulations, and Definitions
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements

NEW JERSEY ADMINISTRATIVE CODE (NJAC)

NJAC 8:60	(2004) New Jersey Administrative Code Title 8 Health
NJAC 12:120	(2004) New Jersey Administrative Code Title 12 Labor

1.2 DESCRIPTION OF WORK

This section provides requirements for implementing practices and procedures for working safely and in compliance with OSHA and USACE regulations while performing remedial activities at the Cornell-Dubilier Electronics Site - OU-2. This section primarily addresses Safety, Health, and emergency response for potential chemical and physical hazards which may be encountered at the site. For Safety and Occupational Health requirements, refer to Section 01525 SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS. For Health and Safety requirements for asbestos abatement, refer to Section 13280A ASBESTOS HAZARD CONTROL ACTIVITIES.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Name of the Contractor's Site Safety and Health Officer (SSHO); G

Certificate Numbers of the Contractor's Safety and Health Manager,
a Certified Industrial Hygienist; G

Site Safety and Health Plan (SSHP); G

Air Monitoring Plan (AMP); G

Spill Prevention and Control Plan;G

Dust Control Plan; G

Health and Safety Training Documentation;

SD-02 Shop Drawings

Work Zones; G, A/E

Drawings including initial work zone boundaries: Exclusion Zone
(EZ), including restricted and regulated areas; Contamination
Reduction Zone (CRZ); and Support Zone (SZ).

Decontamination Facilities; G, A/E

Drawings showing the layout of the personnel and equipment
decontamination areas.

SD-03 Product Data

Exposure Monitoring/Air Sampling Program

Personnel exposure monitoring/sampling results.

Site Control Log

Record of each entry and exit into the site, as specified.

Employee Certificates

A certificate for each worker performing cleanup operations with
potential for contaminant-related occupational exposure signed by
the safety and health manager and the occupational physician
indicating the workers meet the training and medical surveillance
requirements of this contract.

SD-06 Test Reports

Weekly Safety Reports; G

Submit reports as their incidence occurs, in accordance with the
requirements of the paragraph entitled, "Reports."

Accident Reports; G

Daily Safety Inspection Log;

SD-08 Personnel Statements/Certificates

Medical Certifications;

Training certificates;

Respirator Fit-Test Certificates;

List of Field Personnel;

Safety and Health Phase-Out Report; G.

1.4 REGULATORY REQUIREMENTS

Work performed under this contract shall comply with EM 385-1-1, OSHA requirements in 29 CFR 1910 and 29 CFR 1926, especially OSHA's Standards 29 CFR 1926.65 and 29 CFR 1910.120 and state specific OSHA requirements where applicable. Matters of interpretation of standards shall be submitted to the Contracting Officer for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements shall apply.

1.5 PRECONSTRUCTION SAFETY CONFERENCE

A preconstruction safety conference shall be conducted prior to the start of site activities and after submission of the Contractor's APP/SSHP. The objective of the meeting will be to discuss health and safety concerns related to the impending work, discuss project health and safety organization and expectations, review and answer comments and concerns regarding the APP/SSHP or other health and safety concerns the Contractor may have. The Contractor shall ensure that those individuals responsible for health and safety at the project level are available and attend this meeting.

1.6 SITE SAFETY AND HEALTH PLAN (SSHP)

1.6.1 Development and Implementation

The Contractor shall develop a Site Safety and Health Plan (SSHP) for the project and provide to the Contracting Officer at least 14 calendar days prior to the Pre-Work Conference and no later than 30 days after the NTP. Once the SSHP is approved, the Contractor shall review and update the approved plan for site-specific conditions at each building or cluster, as necessary, if conditions change. The Site Safety and Health Plan (SSHP) shall meet the requirements of Section 01.A.09 and Appendix A of EM 385-1-1 and 29 CFR 1910.120/29 CFR 1926.65 (b) (4). The Safety and Health Manager shall be responsible for the development, implementation and oversight of the SSHP. The SSHP shall establish, in detail, the protocols necessary for the anticipation, recognition, evaluation, and control of hazards associated with each task performed. The SSHP shall address site-specific safety and health requirements and procedures based upon site-specific conditions.

At a minimum, the SSHP shall incorporate a site-specific (and cluster-specific) Activity Hazard Analysis meeting the requirements of Section 01.A.12 and 01.A.13 and Figure 1-2 of EM 385-1-1; shall reference a separate Accident Prevention Plan as specified in Appendix A of EM 385-1-1;

and shall address each of the following elements in Appendix C of ER 385-1-92 as they pertain to this site:

1. Site Description and Contamination Characterization;
2. Hazard/Risk Analysis;
3. Occupational Exposure Action Levels;
4. Staff Organization, Qualifications and Responsibilities;
5. Training;
6. Personal Protective Equipment;
7. Medical Surveillance requirements for the project;
8. Exposure Monitoring/Air Sampling;
9. Heat/Cold Stress Monitoring and Management;
10. Standard Operating Safety Procedures, Engineering Controls, and Work Practices;
11. Site Control Measures;
12. Personal Hygiene and Decontamination;
13. Equipment Decontamination;
14. Emergency Equipment and First Aid Requirements;
15. Emergency Response and Contingency Procedures;
16. Accident Prevention;
17. Logs, Reports and Recordkeeping.

The SSHP shall be considered a living document and shall be updated as occupational safety and health conditions change during project execution and improved as occupational safety and health lessons are learned during the course of the project.

1.6.2 Acceptance and Modifications

Prior to submittal, the SSHP shall be signed and dated by the Safety and Health Manager and the Site Superintendent. The SSHP shall be submitted for review seven days prior to the Preconstruction Safety Conference. The SSHP shall be submitted for review and approval by the government safety officer. Deficiencies in the SSHP will be discussed at the pre-work safety conference, and the SSHP shall be revised to correct the deficiencies and resubmitted for acceptance. On-site work shall not begin until the plan has been accepted. A copy of the written SSHP shall be maintained on site. Changes and modifications to the accepted SSHP shall be made with the knowledge and concurrence of the Safety and Health Manager, the Site Superintendent, and the Contracting Officer's Representative. If any unforeseen hazard becomes evident during the performance of the work, the SSHP shall bring such hazard to the attention of the Safety and Health Manager, the Site Superintendent, and the Contracting Officer's Representative, both verbally and in writing, for resolution as soon as possible. In the interim, necessary action shall be taken to re-establish and maintain safe working conditions in order to safeguard on-site personnel, visitors, the public, and the environment. Disregard for the provisions of this specification or the accepted SSHP shall be cause for stopping of work until the matter has been rectified.

1.6.3 Availability

The SSHP shall be made available in accordance with 29 CFR 1910.120, (b) (1) (v) and 29 CFR 1926.65, (b) (1) (v).

1.7 SITE DESCRIPTION AND CONTAMINATION CHARACTERIZATION

1.7.1 Project/Site Conditions

The SSHP shall include a site description and contamination characterization section that addresses the following elements:

- a. Description of site location, topography, size, and past uses of the site.
- b. A list of contaminants that may present occupational health and safety hazards. This list shall be created by researching sources of information from past site investigation activities. The contamination characterization shall be reviewed and revised if new chemicals are identified as work progresses.

1.7.2 Information Resources

The information resources are in Section 01110 SUMMARY OF WORK.

1.8 HAZARD/RISK ANALYSIS

The SSHP shall include a safety and health hazard/risk analysis for each site task and operation to be performed. The hazard/risk analysis shall provide information necessary for determining safety and health procedures, equipment, and training to protect on-site personnel, the environment, and the public. Available site information shall be reviewed when preparing the "Hazard/Risk Analysis" section of the SSHP. Submit Medical Certifications for all field personnel. Submit a statement reflecting the number of the Contractor's employees who have completed required health and safety training courses. Submit a copy of Training certificates and refresher training certificates for all field personnel including, at a minimum, health and safety training required by OSHA 29 CFR 1910.120; and First aid/CPR training. Submit a copy of Respirator Fit-Test Certificates for all field personnel. Submit a List of Field Personnel specifying names of all the field personnel who will be on site. The following elements, as a minimum, shall be addressed.

1.8.1 Site Tasks and Operations

The SSHP will include a comprehensive section that addresses tasks and objectives of site operations and logistics and resources required to reach those tasks and objectives. Based on the demolition required, the following are anticipated major site tasks and operations to be performed: site preparation, work zone construction, excavation, grading, backfilling, utility termination and deactivation, building demolition, transportation and disposal of materials, surveying, paving, equipment decontamination, and demobilization. This is not a complete list of site tasks and operations, therefore, it shall be expanded and/or revised, during preparation of the SSHP, as necessary.

1.8.2 Hazards

The following potential hazards may be encountered during site work. These are not complete lists, therefore, they shall be expanded and/or revised as necessary during preparation of the SSHP. For those hazards that are evaluated and found not to be a potential hazard on this site, a negative declaration shall be given to establish that adequate consideration was given to the topic with a brief justification for its omission or reduced

level of detail.

1.8.2.1 Physical Hazards

The Hazard/Risk Analysis section of the SSHP shall describe the physical hazards associated with anticipated site operations. These include, but are not limited to: heavy equipment operation; slips, trips, and falls; overhead and belowground utilities; etc.

1.8.2.2 Chemical Hazards

The Hazard/Risk Analysis section of the SSHP shall describe chemical, physical, and toxicological properties of contaminants; sources and pathways of employee exposures; anticipated on-site and off-site exposure level potentials; and regulatory (including federal, state, and local) or recommended protective exposure/dose standards. The SSHP shall also address employee exposure to hazardous substances brought on site, and shall comply with the requirements of 29 CFR 1910.1200 and 29 CFR 1926.59, Hazard Communication.

1.8.2.3 Physical Agents

The SSHP shall evaluate hazards associated with ordnance, noise, and heat/cold stress in accordance with ACGIH TLVs/BEIs. Although ordnance is not expected at this site, the Contractor shall include in the SSHP, at a minimum, the basic steps for initial response in the unlikely event that ordnance is discovered.

1.8.2.4 Biological Hazards

Potential hazards associated with poisonous plants, insects, and animals shall be evaluated in the SSHP.

1.8.3 Action Levels

1.8.3.1 General

Action levels shall be established for the situations listed below, at a minimum. Current EPA (NAAQS) National Ambient Air Quality Standards (NAAQS), ACGIH-02 Threshold Limit Values, or other applicable exposure standards and guidelines shall be utilized in developing the action levels.

The action levels and required actions (engineering controls, changes in PPE, etc.) shall be presented in the SSHP in both text and tabular form. Initial action levels for workers and the community appear in Tables 01351-1 and 01351-2, respectively.

TABLE 01351-1 MINIMUM ACCEPTABLE WORKER ACTION LEVELS

CONTAMINANT AND MEDIUM	LEVEL (a)	ACTION TO BE TAKEN (a)
<u>ACTIVE WORK AREA</u>		
Lead in air Monitoring	1.5 ug per cubic meter	Initiate Perimeter
	30 ug per cubic meter	Upgrade to Level C
Dust in air (total above background)	2.5 mg per cubic meter	Upgrade to Level C
Combustible gas in air	more than 10 percent LEL	Stop work; Ventilate workspace
	more than 25 percent LEL	Stop work; Vacate area
Oxygen in air	less than 19.5 percent	Stop work; Ventilate workspace
Oxygen in air	more than 22 percent	Stop work; Ventilate workspace
Asbestos in air	0.1 fibers per cc	Upgrade to Level C
Total VOCs	> 5 metric units over background sustained for 15 minutes	Upgrade to Level C
	>15 metric units over background for any period of time	Upgrade to Level C
	>15 metric units over background sustained for 5 or more minutes	Upgrade to Level C

Notes:

(a) Changes in these initial action levels may be required during the course of this project but will only occur with submission of written documentation specifying the technical basis for such a change and the written approval of the Contracting Officer's Representative.

TABLE 01351-2 MINIMUM ACCEPTABLE COMMUNITY ACTION LEVELS

Notify the Contracting Officer every time a community action level is exceeded.

CONTAMINANT AND MEDIUM	LEVEL (a)	ACTION TO BE TAKEN (a)
Dust in air	150 ug per cubic meter	Control dust
Asbestos in air	0.01 fibers per cubic centimeter	Control dust
Combustible gas in air	more than 10 percent LEL	Evacuate area
Oxygen in air	less than 19.5 percent or more than 22 percent	Evacuate area Evacuate area
Volatile Organic Compounds of unknown origin	more than 2.5 meter units	Evacuate area
Lead	Worker levels exceed 1.5 ug per cubic meter	Initiate Monitoring

Notes:

(a) Changes in these initial action levels may be required during the course of this project but will only occur with submission of written documentation specifying the technical basis for such a change and the written approval of the Contracting Officer's Representative.

1.9 STAFF ORGANIZATION, QUALIFICATION AND RESPONSIBILITIES

Develop an organizational structure that sets forth lines of authority (chain of command), responsibilities, and communication procedures concerning site safety, health, and emergency response. This organizational structure shall cover management, supervisors and employees of the Contractor and subcontractors. The structure shall include the means for coordinating and controlling work activities of subcontractors and suppliers. The SSHP shall include a description of this organizational structure as well as qualifications and responsibilities of the individuals listed below. The Contractor shall obtain the Contracting Officer's Representative's acceptance before replacing any member of the safety and health staff. Requests for replacement shall include the names, qualifications, duties, and responsibilities of each proposed replacement.

1.9.1 Safety and Health Manager

The Safety and Health Manager shall be a Certified Industrial Hygienist (CIH; certified by the American Board of Industrial Hygiene). The name, qualifications (education summary and documentation), and work experience summary shall be included in the SSHP along with a copy of a current valid ABIH confirmation of eligibility.

1.9.1.1 Qualifications

The Safety and Health Manager shall have the following additional qualifications:

- a. A minimum of three years experience developing and implementing safety and health programs at chemically contaminated material cleanup project sites.
- b. Documented experience in supervising professional and technician level personnel.
- c. Documented experience in developing worker exposure assessment programs and air monitoring programs and techniques.
- d. Documented experience developing personal protective equipment programs, including programs for working in and around potentially toxic, flammable and combustible atmospheres and confined spaces.
- e. Working knowledge of state and Federal occupational safety and health regulations.
- f. Documented experience supervising construction safety personnel, performing health and safety audits, developing health and safety action item lists, and providing documented health and safety follow-up for environmental (HTRW) sites.

1.9.1.2 Responsibilities

The Safety and Health Manager shall:

- a. Be responsible for the development, implementation, oversight, and enforcement of the SHP and SSHP.
- b. Sign and date the SSHP prior to submittal.
- c. Conduct initial site-specific training.
- d. Be present on site during the first day of remedial activities and at the startup of each new phase.
- e. Visit the site at least once per field event to audit the effectiveness of the SSHP.
- f. Be available for emergencies.
- g. Provide onsite consultation as needed to ensure that the SSHP is fully implemented.
- h. Coordinate any modifications to the SSHP with the Site Superintendent, the SSHO, and the Contracting Officer's Representative.
- i. Provide continued support for upgrading/downgrading of the level of personal protection.
- j. Be responsible for evaluating air monitoring/sampling data and recommending changes to engineering controls, work practices, and PPE.

- k. Review accident reports and results of daily inspections.
- l. Serve as a member of the Contractor's quality control staff.
- m. Conduct monthly site inspection and report finding to USACE during the period of work activities on-site.

1.9.2 Additional Certified Health and Safety Support Personnel

During the development of the SHP and SSHP, the designated Safety and Health Manager shall utilize, as necessary, the services of a qualified and competent industrial hygienist for health related hazards and strategies, and a qualified and competent safety professional for physical safety hazards and strategies.

1.9.3 Site Safety and Health Officer (SSHO)

An industrial hygienist, or safety professional, and one alternate, responsible to the Contractor's Safety and Health Manager, shall be designated as the Site Safety and Health Officer (SSHO). The Name of the Contractor's Site Safety and Health Officer, Certificate Numbers of the Contractor's Safety and Health Manager, qualifications (education and training summary and documentation), and work experience of the SSHO and alternate shall be included in the SSHP.

1.9.3.1 Qualifications

The SSHO shall have the following qualifications:

- a. A minimum of 3 years experience in implementing safety and health programs at chemically contaminated material cleanup project sites where Level C personal protective equipment was required.
- b. Documented experience in construction techniques and construction safety procedures.
- c. Working knowledge of Federal and State occupational safety and health regulations.
- d. Specific training in personal and respiratory protective equipment program implementation, confined space program oversight, and in the proper use of air monitoring/sampling instruments.
- e. A 10-hour Construction Safety Course meeting the requirements of EM 385-1-1, paragraph 01.A.17.

1.9.3.2 Responsibilities

The SSHO shall:

- a. Assist and represent the Safety and Health Manager in on-site training and the day-to-day on-site implementation and enforcement of the accepted SSHP.
- b. Be assigned to the site on a full-time basis for the duration of field activities excluding site grading, filling, seeding, site restoration, and demobilization. The SSHO shall be at the site on a part-time basis during these activities. The SSHO may have other duties besides safety- and health-related duties, but health

and safety duties shall come first. If operations are performed during more than one work shift per day, an SSHO shall be present for each shift.

- c. Have authority to enforce site compliance with specified safety and health requirements, Federal, State and OSHA regulations, and all aspects of the SSHP including, but not limited to, activity hazard analyses, air monitoring/sampling, use of PPE, decontamination, site control, standard operating procedures used to minimize hazards, safe use of engineering controls, the emergency response plan, confined space entry procedures, spill containment program, and preparation of records by performing a daily safety and health inspection and documenting results on the Daily Safety Inspection Log.
- d. Have authority to stop work if unacceptable health or safety conditions exist, and take necessary action to re-establish and maintain safe working conditions.
- e. Consult with and coordinate any modifications to the SSHP with the Safety and Health Manager, the Site Superintendent, and the Contracting Officer's Representative.
- f. Serve as a member of the Contractor's quality control staff on matters relating to safety and health. Attend the pre-construction conference, pre-work meetings including preparatory inspection meeting, and periodic in-progress meetings.
- g. Conduct accident investigations and prepare Accident Reports. ENG Form 3394 USACE Accident Investigation form will be filled out and submitted to USACE Safety Officer for pen and ink changes, and final submitted within 2 working days.
- h. Review results of daily quality control inspections and document safety and health findings into the Daily Safety Inspection Log. Prepare and submit Weekly Safety Reports.
- i. In coordination with site management and the Safety and Health Manager, recommend corrective actions for identified deficiencies and oversee the corrective actions.
- j. Maintain a deficiency tracking log per EM 385-1-1, paragraph 01A.12(d), on a health and safety bulletin board as specified in EM 385-1-1, paragraph 01A.06.
- k. Maintain applicable safety reference material on the job site.

1.9.4 Safety and Health Technicians

For each work crew in the exclusion zone, one person designated as a Safety and Health Technician shall perform air monitoring, decontamination, and safety oversight activities on behalf of the SSHO. They shall have appropriate training equivalent to the SSHO in each specific area for which they have responsibility and shall report to and be under the supervision of the SSHO.

1.9.5 Occupational Physician

1.9.5.1 Qualifications

The services of a licensed physician, who is certified in occupational medicine by the American Board of Preventative Medicine, or who, by necessary training and experience is Board eligible, shall be utilized. The physician shall be familiar with this site's hazards and the scope of this project. The medical consultant's name, qualifications, and knowledge of the site's conditions and proposed activities shall be included in the SSHP.

1.9.5.2 Responsibilities

The physician shall be responsible for the determination of medical surveillance protocols and for review of examination/test results performed in compliance with 29 CFR 1910.120(f) and 29 CFR 1926.65(f) and paragraph: MEDICAL SURVEILLANCE.

1.9.6 Persons Certified in First Aid and CPR

At least two persons who are currently certified in first aid and CPR by the American Red Cross or other approved agency shall be on site at all times during site operations. They shall be trained in universal precautions and the use of PPE as described in the Bloodborne Pathogens Standard of 29 CFR 1910.1030. These persons may perform other duties but shall be immediately available to render first aid when needed. These persons should also have had required training in the use of defibrillator.

1.10 1.10 EMERGENCY MEDICAL TREATMENT

Contractors will arrange for their own emergency medical treatment. Government has no responsibility to provide emergency medical treatment.

1.11 TRAINING

Personnel shall receive training in accordance with the Contractor's written safety and health training program and 29 CFR 1910.120, 29 CFR 1926.65, 29 CFR 1926.21, ER 385-1-92, and EM 385-1-1. The SSHP shall include a section describing training requirements. Copies of current Health and Safety Training Documentation shall be submitted prior to initial entry onto the work site and attached to the SSHP. Copies of recent training certificates shall be kept on site, along with medical surveillance, fit testing, and physician's or health care provider's written opinion that employee is fit for duty.

1.11.1 General Hazardous Waste Operations Training

All personnel shall have successfully completed 40 hours of hazardous waste instruction off the site; 3 days actual field experience under the direct supervision of a trained, experienced supervisor; and 8 hours refresher training annually. On-site supervisors shall have completed the above training and 8 hours of additional, specialized training covering at least the following topics: the employer's safety and health program, personal protective equipment program, spill containment program, and health hazard monitoring procedures and techniques.

1.11.2 Site-Specific Training

Site-specific training covering site hazards, procedures, and all contents of the approved SSHP shall be conducted by the SSHO for all on-site employees, including those assigned only to the Support Zone, prior to the commencement of work; for visitors prior to entering the site; and on an ongoing basis.

Site-specific training sessions shall be documented in accordance with Section 01.B.05.b of EM 385-1-1.

1.11.3 Initial Session (Pre-entry Briefing)

Prior to commencement of on-site field activities, all site employees, including those assigned only to the Support Zone, shall attend a site-specific safety and health training session. This session shall be conducted by the Safety and Health Manager and the SSHO to ensure that all personnel are familiar with the requirements and responsibilities for maintaining a safe and healthful work environment. Procedures and contents of the accepted SSHP and Sections 01.B.02 and 28.A.02(4)(c) of EM 385-1-1 shall be thoroughly discussed. The Contracting Officer's Representative will be notified at least 5 days prior to the initial site-specific training session so government personnel involved in the project may attend.

1.11.4 Periodic Sessions

Periodic on-site training shall be conducted by the SSHO at least weekly for personnel assigned to work at the site during the following week. The training shall address safety and health procedures, work practices, any changes in the SSHP, activity hazard analyses, work tasks, or schedule; results of previous week's air monitoring/sampling, review of safety discrepancies and accidents. Detailed meeting minutes of safety discussions at weekly meetings shall be prepared and retained for reference.

If an operational change affecting on-site fieldwork is made, a meeting prior to implementation of the change shall be convened to explain safety and health procedures. Site-specific training sessions for new personnel, visitors, and suppliers shall be conducted by the SSHO using the training curriculum outlines developed by the Safety and Health Manager.

1.11.5 Training for Hazardous Materials Shipments

Training for hazardous materials shipments shall be provided to employees transporting hazardous materials in accordance with the regulatory requirements issued 25 March 2003 by the Research and Special Programs Administration (RSPA) of the Department of Transportation (DOT).

1.11.6 Other Training

The Safety and Health Manager shall provide training as specified by 29 CFR 1910.146, for employees who are required to supervise, standby, or enter permit-required confined spaces. Persons involved in any aspect of the transportation of hazardous materials shall be trained in accordance with 49 CFR 172 Subpart H.

Persons involved in removing asbestos shall be trained in accordance with NJAC 12:120 and NJAC 8:60.

1.12 PERSONAL PROTECTIVE EQUIPMENT

1.12.1 General

In accordance with 29 CFR 1910.120(g)(5) and 29 CFR 1926.65(g)(5), a written Personal Protective Equipment (PPE) Program which addresses the elements listed in that regulation, and which complies with respiratory protection program requirements of 29 CFR 1910.134, is to be included in the employer's Safety and Health Program. The SSHP shall detail the minimum PPE ensembles (including respirators) and specific materials from which the PPE components are constructed for each site-specific task and operation to be performed, based upon the hazard/risk analysis. Components of levels of protection (B, C, D and modifications) must be relevant to site-specific conditions, including heat and cold stress potential and safety hazards. Only respirators approved by NIOSH shall be used. On-site personnel shall be provided with appropriate PPE. Protective equipment and clothing shall be kept clean and well maintained. The PPE section of the SSHP shall include site-specific procedures to determine PPE program effectiveness and for on-site fit-testing of respirators, cleaning, maintenance, inspection, and storage of PPE. All PPE shall meet with the following standards: ANSI Z87.1 and ANSI Z89.1.

1.12.2 Levels of Protection

The Safety and Health Manager shall establish appropriate levels of protection for each work activity based on review of historical site information, existing data, an evaluation of the potential for exposure (inhalation, dermal, ingestion, and injection) during each task, past air monitoring results, and a continuing safety and health monitoring program. The Safety and Health Manager shall also establish action levels for upgrade or downgrade in levels of PPE from the following specified minimum levels of protection. Protocols and the communication network for changing the level of protection shall be described in the SSHP. The PPE reassessment protocol shall address air monitoring results, potential for exposure, changes in site conditions, work phases, job tasks, weather, temperature extremes, individual medical considerations, etc.

1.12.2.1 Components of Levels of Protection

The following items constitute minimum protective clothing and equipment ensembles to be used during this project:

Level D:

Work clothing, as dictated by the weather

Safety (steel toe/shank) shoes or boots

Hard hat

Safety glasses, goggles, or face shield

Hearing protection (where required as specified in Paragraph
1.21.11 Hearing Protection and Noise Control)

Nitrile, neoprene, or natural rubber gloves (when handling
contaminated wastes, soils, or water)

Modified Level D:

Level D PPE and:

Disposable, hooded, one-piece, full-body coveralls constructed of spun-bonded olefin or polypropylene fabrics (e.g., Tyvek, or equivalent).

Disposable boot covers of (minimum) 60 mil rubberized PVC.

Level C:

Modified Level D PPE and:

Full-facepiece, air purifying respirator equipped with filter cartridges approved by NIOSH for organic vapors, with a HEPA pre-filter.

1.12.3 Initial Minimum Levels of PPE by Task

The initial minimum protective equipment requirements for each major task and operation are listed below. Available site information shall be reviewed and the list of tasks and operations and these levels of protection shall be expanded and/or revised during preparation of the SSHP.

OPERATION	INITIAL LEVEL OF PROTECTION
Site Preparation/Mobilization	Level D, modified
Civil Surveying	Level D
Chemical Sampling	Level C
Work Zone Construction	Level D, modified
Demolishing Structures/Underpinning	Level C
Excavation	Level C
Rubble and Soil Removal and Stockpiling	Level C
Site Restoration and Backfilling	Level D
Asbestos Removal	Level C
Equipment Decontamination	Level C
Demobilization	Level D

1.12.4 PPE for Government Personnel

Ten clean sets of PPE and clothing (excluding safety shoes, which will be provided by individual visitors, as necessary), and two pairs of air purifying negative pressure respirators shall be available for use by the Contracting Officer's Representative or the Designated Representative or official visitors. The items shall be cleaned and maintained by the Contractor, stored and clearly marked: "FOR USE BY GOVERNMENT PERSONNEL ONLY." The Contractor shall provide basic training in the use and limitations of the PPE provided, and institute administrative controls to check prerequisites prior to issuance. Such prerequisites include meeting minimum training requirements for the work tasks to be performed and medical clearance for site hazards and respirator use.

1.13 MEDICAL SURVEILLANCE PROGRAM

The Safety and Health Manager, in conjunction with the Occupational Physician, shall detail, in the Contractor's Safety and Health Program and the SSHP, the Medical Surveillance Program that includes scheduling of examinations, certification of fitness for duty, compliance with OSHA requirements, and information provided to the physician. Examinations shall be performed by or under the supervision of a licensed physician, preferably one knowledgeable in occupational medicine, and shall be provided without cost to the employee, without loss of pay and at a reasonable time and place. Medical surveillance protocols and examination and test results shall be reviewed by the Occupational Physician. The Medical Surveillance Program shall contain the requirements specified below. Personnel working in contaminated areas of the site shall have been examined as prescribed in 29 CFR 1910.120, and 29 CFR 1926.65, and determined medically fit to perform their duties.

1.13.1 Frequency of Examinations

Employees shall have been provided with medical examinations as specified, within the past 12 months and shall receive exams annually thereafter (if contract duration exceeds one year); on termination of employment; reassignment in accordance with 29 CFR 1910.120(e)(3)(i)(C), and 29 CFR 1926.65(e)(3)(i)(C); if the employee develops signs or symptoms of illness related to workplace exposures; if the physician determines examinations need to be conducted more often than once a year; and when an employee develops a lost time injury or illness during the period of this Contract. The supervisor shall be provided with a written statement signed

by the physician prior to allowing the employee to return to the work site after injury or illness resulting in a lost workday, as defined in 29 CFR 1904.12(f).

1.13.2 Content of Examinations

The following elements shall be included in the Medical Surveillance Program. Additional elements may be included at the discretion of the occupational physician responsible for reviewing the medical surveillance protocols.

- a. Complete medical and occupational history (initial exam only)
- b. General physical examination of major organ systems
- c. Pulmonary function testing including FVC and FEV1.0
- d. CBC with differential
- e. Blood chemistry screening profile (e.g., SMAC 20/25)
- f. Urinalysis with microscopic examination and bioassay
- g. Audiometric testing (as required by Hearing Conservation Program)
- h. Visual acuity
- i. Chest X-ray (This test should be performed no more frequently than every four years, unless directed by Occupational Physician.)
- j. Electrocardiogram (as directed by Occupational Physician)

1.13.3 Information Provided to the Occupational Physician

The physician shall be furnished with the following:

- a. Site information from paragraph: SITE DESCRIPTION AND CONTAMINATION CHARACTERIZATION
- b. Information on the employee's anticipated or measured exposure/dose
- c. A description of any PPE used or to be used
- d. A description of the employee's duties as they relate to the employee's exposures (including physical demands on the employee and heat/cold stress)
- e. A copy of 29 CFR 1910.120, or 29 CFR 1926.65
- f. Information from previous examinations not readily available to the examining physician
- g. A copy of Section 5.0 of NIOSH 85-115
- h. Information required by 29 CFR 1910.134
- i. A copy of OSHA Respirator Medical Evaluation Questionnaire (Appendix C to Section 29 CFR 1910).134.

1.13.4 Physician's Written Opinion

Before work begins a copy of the physician's written opinion for each employee shall be obtained and furnished to the Safety and Health Manager and the employee. The opinion shall address the employee's ability to perform hazardous remediation work and shall contain the following:

- a. The physician's recommended limitations upon the employee's assigned work and/or PPE usage;
- b. The physician's opinion about increased risk to the employee's health resulting from work; and
- c. A statement that the employee has been informed and advised about the results of the examination.

1.13.5 Medical Records

Documentation of medical exams shall be provided as part of the Certificate of Worker or Visitor Acknowledgment. Medical records shall be maintained in accordance with 29 CFR 1910.120, and 29 CFR 1926.65.

1.13.6 Employee Certificates

Documentation that employees have current satisfactory medical examinations shall be provided on employee certificates.

1.13.7 Site Specific Medical Surveillance

Prior to onsite work, medical surveillance program participants shall undergo medical testing for lead. The Contractor shall provide an explanation of the site specific medical surveillance testing in the APP/SSHP.

1.14 AIR MONITORING AND SAMPLING

The Safety and Health Manager shall prepare and implement an exposure monitoring/air sampling program to identify and quantify safety and health hazards and airborne levels of hazardous substances in order to assure proper selection of engineering controls, work practices and personal protective equipment for affected site personnel and the community.

1.14.1 General Requirements

- a. An Air Monitoring Plan (AMP) shall provide for Exposure Monitoring/Air Sampling Program for occupational and non-occupational exposures. The AMP shall be approved by the signature of the Safety and Health Manager (a CIH) and submitted for review and approval by the Contracting Officer's Representative at least 14 calendar days prior to the Pre-Work Conference and no later than 30 days after the NTP. The AMP shall be designed to detect and quantify respirable dust, lead, volatile organic compounds, oxygen levels, combustible gases, and airborne asbestos. Action levels shall be established by the Contractor as specified in the paragraph Action Levels. Initial action levels for workers and the community are provided in Tables 01351-1 and 01351-2.
- b. The AMP shall be developed and implemented to ensure that the

proper level of PPE is used, to document that the level of worker protection is adequate, to ensure compliance with the action levels established in the SSHP, to ensure that the total effective dose equivalent (TEDE) can be accurately derived, and to assess the migration of contaminants to off-site and on-site receptors associated with remedial work. The AMP shall consider the potential presence of tenants in structures adjacent to ongoing demolition and off-site residential properties and provide for action limits in the vicinity of the work and the site perimeter to protect these tenants.

- c. During each on-site activity air contaminant levels shall be monitored in each medium through which contaminants can enter the worker's breathing zone or the neighboring properties (perimeter air sampling) during intrusive activities (or at the discretion of the SSHO). The types of measurements to be collected shall be listed in the AMP with the instruments specified.
- d. Information gathered during the AMP shall be documented.
- e. All required air monitoring/sampling instrumentation shall be provided by the Contractor and shall be maintained and calibrated according to the NIOSH, OSHA, and EPA methods and/or manufacturer's recommendations. Air samples will be taken in appropriate workers breathing zones to provide a negative air exposure in accordance with 29 CFR 1926.62. Such maintenance and calibration data shall be recorded and included in the project documents.
- f. All air monitoring/sampling equipment shall be operated by personnel trained in its specific use.
- g. The Safety and Health Manager shall follow the action levels prescribed in the SSHP/AMP or present new action levels which the Contracting Officer's Representative will duly consider. New action levels, if presented, shall be defined in the Contractor's SSHP. If, during the course of the construction project, unanticipated airborne hazards arise for which the established action levels do not provide adequate protection, the Safety and Health Manager shall establish action levels and protection procedures and standard equipment that will provide adequate protection from the new hazard. Establishment of additional action levels and protection procedures and equipment shall be made with the concurrence of the Contracting Officer's Representative. If initial air monitoring results are negative (i.e., no exceedences above action levels), Contractor may petition the Contracting Officer to reduce air monitoring frequency. In such a case, the Contractor shall archive all sample cassettes for future reference.
- h. At the beginning of each work activity requiring air monitoring/sampling, the Contractor shall complete monitoring/sampling at the locations and frequencies stated in the SSHP. Criteria for modification of the monitoring locations or frequencies shall be discussed in the SSHP. Modifications shall not be implemented without written authorization from the Contracting Officer's Representative.
- i. When project operations involve intrusive activities such as

subsurface drilling, cutting of gas mains, fuel lines, or sewer lines, the Contractor shall utilize a combination of combustible gas indicator and oxygen monitor. Such monitoring shall be conducted close to the sources of potential leaks and in locations where leaked vapor could accumulate. If concentrations exceed the action levels, the Contractor shall stop work and ventilate the area. Any cutting or hot work done on fuel lines or storage tanks will be done in accordance with applicable API and OSHA standards.

When natural gas or sewer lines are involved, the contractor shall require the on-site presence of the utility company representative. All sources of ignition within 100 feet of any minor incident and 500 feet of any gas main shall be extinguished.

1.14.2 Real-Time Air Monitoring

- a. Furnish and maintain real-time air monitoring equipment to include: an organic vapor monitor (photoionization detector or flame ionization detector), explosimeter, oxygen meter, and all necessary calibration/audit equipment and supplies. All equipment shall be intrinsically safe.
- b. Perform real-time air monitoring for an adequate period prior to commencement of work to establish baseline conditions for total organic vapors, explosive gases, oxygen, and respirable airborne particulates. For the establishment of baseline conditions, monitoring shall be performed near each anticipated active work zone and at each approved perimeter monitoring location. Total organic vapors baseline will be established based on consistent readings from the organic vapor monitor.
- c. Provide real-time monitoring for dust using a total airborne dust monitor (MIE-Ram-1 or equivalent) with datalogging capabilities within 10 feet (downwind) at appropriate areas adjacent to excavation, fill placement and compaction, asbestos removal, and demolition. Perimeter dust monitoring shall be conducted at a minimum of two locations near the site perimeter alternating between the Lehigh Valley RR and Factory Street borders and the Spicer Avenue and Hamilton Boulevard borders. All samplers will be programmed for continuous operation during each work shift with multiple sampling events at each location.
- d. Provide real-time monitoring for explosive gases during demolition and excavation. This monitoring shall be performed every 30 minutes or less during building and slab removal and subgrade work within 10 feet of active work areas and at a minimum of two perimeter locations as described for dust monitoring.
- e. Provide real-time air monitoring for volatile organic compounds with a photoionization detector or flame ionization detector (PID - FID or equivalent). Monitored levels in excess of the on-site action levels established by the Safety and Health Manager and CIH shall require upgrades in levels of protection and/or site evacuation.
- f. Monitoring for organic vapor concentrations will be conducted in accordance with Tables 0135-1 and 0135-2.

If the organic vapor level in any active working location exceeds

250 ppm for any two successive readings within a 15-minute period, or if the explosimeter indicates over 10 percent of the lower explosive limit on any signal reading, then that work location shall be shut down and personnel evacuated upwind and the Contracting Officer's Representative shall be notified immediately. Work shall not resume until:

Appropriate corrective measures are implemented; and

Authorization to continue work is given by the Safety and Health Manager based on lower air contamination levels.

- g. A data sheet shall be developed and implemented by the Safety and Health Manager upon which the following real-time monitoring data shall be recorded:

Date and time of monitoring;

Air monitoring location;

Instrument, model number, serial number;

Calibration/background levels;

Results of monitoring; and

Interpretation of the data and any further recommendations by the Safety and Health Manager or the SSHO in consultation with the Safety and Health Manager.

- g. The person conducting the sampling shall sign and date all data sheets. These results shall be given verbally to the Contracting Officer's Representative following each sampling event that indicates concentrations in excess of the action levels, and documented in writing by the end of each work day with three copies provided.

1.14.3 Lead Air Sampling

Determine whether a Lead Compliance Plan is required as per 29 CFR 1926.62(e)(2).

Document and submit for approval the evaluation and subject determination.

If the Lead Compliance Plan is required, it shall be submitted no later than 30 days of the NTP. Perform lead air sampling during the initial stages of activities that involve the mechanical disturbance of lead-contaminated soil or any surfaces that could be considered to be coated with lead-based paint. Samples shall be collected and analyzed in accordance with NIOSH METHOD 7105. Analysis shall be performed at a laboratory accredited by the AIHA. Although lead airborne concentration is not expected to exceed the OSHA Permissible Exposure Limit (PEL) requirements during this project, if the limits are exceeded, the Contractor shall be required to comply with 29 CFR 1926.62, the OSHA Lead Exposure in Construction Rule.

1.14.4 Asbestos

Background fiber concentration shall be established prior to any initiation of cleanup work by collecting two samples outside the first building that requires asbestos abatement. Personal and air monitoring shall be conducted

during and following asbestos abatement in accordance with applicable OSHA and State Regulations. Asbestos abatement work shall meet the requirements of Section 13280A ASBESTOS HAZARD CONTROL ACTIVITIES.

1.14.5 Meteorological Monitoring

Provide a portable meteorological station for the measurement of wind speed, wind direction, ambient air temperature, atmospheric pressure, atmospheric humidity, solar insulation, and atmospheric precipitation. Specify the calibration, audit, data reduction and document control of the meteorological equipment and data. The equipment and its placement shall be in conformance with EPA Ambient Monitoring guidelines for Prevention of Significant Deterioration (PSD). Standards as specified in PSD regulations promulgated by EPA under the Clean Air Act Amendments of 1977 (Public Law 95-95) on August 7, 1980, as replaced, modified, or amended shall be used. The station shall be installed in an area relatively free of trees and houses. The station shall include a continuous readout temperature gauge and a rainfall gauge and be able to produce a 24-hour average figure for each parameter such that the weather influences on the air samples can be characterized. In addition, visual wind direction indicators shall be established in a central location at each active work area. Meteorological monitoring results shall be documented in the daily safety log.

1.15 HEAT STRESS MONITORING AND MANAGEMENT

The Safety and Health Manager shall develop a heat stress and cold stress monitoring program for on-site activities. Details of the monitoring program, including schedules for work and rest, and physiological monitoring requirements, shall be described in the SSHP. Personnel shall be trained to recognize the symptoms of heat and cold stress. The SSHP and an alternate person shall be designated, in writing, to be responsible for the heat and cold stress monitoring program.

1.15.1 Heat Stress

Physiological monitoring shall commence when the ambient temperature is above 70 degrees F. Monitoring frequency shall increase as the ambient temperature increases or as slow recovery rates are observed. An adequate supply of cool drinking water shall be provided for the workers. The current TLVs for Heat Stress as recommended by the American Conference of Governmental Industrial Hygienists (ACGIH) can be used in determining protocols for prevention of heat stress (ACGIH TLVs/BEIs).

1.15.2 Cold Stress

To guard against cold injury, appropriate clothing and warm shelter for rest periods shall be provided. Procedures to monitor and avoid cold stress shall be followed in accordance with the current TLVs for Cold Stress as recommended by the ACGIH (ACGIH TLVs/BEIs).

1.16 SPILL PREVENTION CONTROL

Provide methods, means, and facilities required to prevent contamination of soil, water, atmosphere, uncontaminated structures, equipment, or material by the discharge of wastes from spills due to Contractor's operations. Measures shall be taken to prevent contaminated materials, chemicals, fuels, oils, greases, bituminous materials, waste washings, herbicides and insecticides, harmful materials, decontamination water, condensate, biological and concrete materials, and surface drainage from entering any

groundwater sources, utilities, drainage or storage, and to prevent release into the air.

Develop and implement written spill prevention and control. These procedures shall address contaminated material, shock sensitive wastes, laboratory waste packs, material handling equipment, and appropriate procedures for drum and container handling, opening, sampling, shipping, and transport. These procedures shall describe prevention measures, such as building berms or dikes; spill control measures and material to be used (e.g., booms, vermiculite); location of the spill control material; personal protective equipment required to cleanup spills; disposal of contaminated material; and who is responsible to report the spill. Storage of contaminated material or hazardous materials shall be appropriately bermed, diked and/or contained to prevent any spillage of material on uncontaminated soil. If the spill or discharge is reportable, and/or human health or the environment are threatened, the National Response Center, the NJDEP, and the Contracting Officer's Representative shall be notified within two hours of spill occurrence.

Provide emergency measures required to contain any spillage and to remove spilled materials and soils or liquids that become contaminated due to spillage. Properly dispose of collected spill material. This includes spillage during soil excavation and loading, dewatering, treatment and discharge, building demolition, or equipment and personnel decontamination.

If a spill occurs, notify the Contracting Officer immediately. Take immediate measures to control and contain the spill within the site boundaries. This includes the following: isolate hazardous areas and keep unnecessary people away; prevent people from touching spilled material; stay upwind, keep out of low areas; and keep combustibles away from the spilled material.

The Contractor shall implement, maintain, supervise, and be responsible for a comprehensive Spill Prevention and Control Plan, which shall be submitted no later than 30 days after the Notice to Proceed (NTP). This plan shall document procedures to be implemented to minimize the occurrence of spills and provide contingency measures for potential spills and discharges. This Plan shall include a description of spill prevention procedures to be implemented for the following:

- a. Site drainage;
- b. Bulk storage;
- c. Truck loading/unloading; and,
- d. Project site production or work.

After each spill, a spill report shall be submitted, the minimum requirements of which shall be outlined in the Spill Prevention and Control Plan.

The Plan shall ensure that sufficient inspections and tests are performed on a continual basis to enable the Contractor to certify, in writing, that the Spill Prevention and Control Plan conforms to any maximum spillage item with respect to the quality of materials, workmanship, construction, finish notification, and reporting requirements under federal, state and local laws and regulations.

1.17 MATERIALS TRANSFER SAFETY

Liquids and residues shall be removed from the tanks using explosion-proof or air-driven pumps. Pump motors and suction hoses shall be bonded to the tank and grounded to prevent electrostatic ignition hazards. Use of a hand pump will be permitted to remove the last of the liquid from the bottom of the tanks. If a vacuum truck is used for removal of liquids or residues, the area of operation for the vacuum truck shall be vapor free. The truck shall be located upwind from the tank and outside the path of probable vapor travel. The vacuum pump exhaust gases shall be discharged through a hose of adequate size and length downwind of the truck and tank area.

Vacuum truck operating and safety practices shall conform to API PUBL 2219.

Tank residues shall be collected in drums, tanks, or tank trucks labeled according to 49 CFR 171 and 49 CFR 172 and disposed of as specified. After the materials have been transferred and the tanks have been exposed, fittings and lines leading to the tanks shall be disconnected and drained of their contents. The contents of the lines shall not spill to the environment during cutting or disconnecting of tank fittings. Materials drained shall be transferred into DOT-approved drums for storage and/or transportation. Only non-sparking or non-heat producing tools shall be used to disconnect and drain or to cut through tank fittings. Electrical equipment (e.g., pumps, portable hand tools, etc.) used for tank preparation shall be explosion-proof. Following cutting or disconnecting of the fittings, openings leading to the tanks shall be plugged.

1.18 DRUM AND CONTAINER HANDLING

The Contractor shall develop a written program for drum and container handling as part of the SSHP which will be approved by the Contracting Officer.

1.19 CONFINED SPACE ENTRY PROCEDURES

Entry into and work in a confined space will not be allowed when oxygen readings are less than 19.5% or greater than 23.5% or if the Lower Flammable Limit (LFL) reading is greater than 10%, unless these conditions are adequately addressed in the confined space entry program and a Confined Space Entry Permit has been submitted. In addition, action levels for toxic atmospheres shall be determined.

Confined spaces have not been identified on the site at this time. In the event a confined space is encountered, a permit shall be prepared and signed off on by the Contractor's qualified person. The permit-required confined space entry program shall include the elements specified in 29 CFR 1926 and provide the following site-specific information:

- a. Identification and evaluation of permit spaces.
- b. Measures to prevent unauthorized entry.
- c. Entry permit system
- d. Entry equipment and personal protective equipment.
- e. Entry procedures.
- f. Permit spaces training.

- g. Rescue and emergency procedures.
- h. Employee participation.

The permit space program can be modified to reflect changing site conditions or work operations, and shall be reviewed by the Safety and Health Manager or designee if any of the following conditions occur:

- a. Occurrence of unauthorized entry of a permit space
- b. Discovery of a permit space not covered by the permit.
- c. Detection of a condition prohibited by the permit.
- d. Occurrence of an injury or a near-miss during entry.
- e. Change in the use or configuration of a confined space.
- f. Employee complaints of permit space program ineffectiveness.

1.20 HOT WORK

Hot work will not be permitted on or within tanks or anywhere else on-site.

Prior to conducting hot work, a hot work permit shall be prepared by the person to be conducting the hot work and reviewed and signed off on by the Contractor's qualified person. An additional hot work permit may need to be obtained from local authorities or in the case of military or other federal installations, the fire marshal. An example format for a hot work permit shall be included in the SSHP. The permit shall describe compliance with the following procedures. After tank interiors have been decontaminated, hot work may be conducted only when the tank is inerted, and to the extent necessary to begin dismantling the tanks. After decontamination of tank interiors, hot work shall not be performed unless monitoring indicates atmospheres within and immediately surrounding the tanks are less than 8% oxygen inside the tank and less than 10% of the LFL outside the tank; continuous monitoring shall continue until the hot work is completed. The hot work prohibition includes welding, cutting, grinding, sawing, or other similar operations which could be expected to potentially generate combustion-producing temperatures or sparks, or which could produce potentially hazardous fumes or vapors. An individual at each hot work site shall be designated as a fire watch. This person's sole responsibility shall be to monitor the hot work and have immediate access to the fire extinguisher located at each hot work site. A new permit shall be obtained at the start of each work shift during which hot work will be conducted.

1.21 SAFETY PROCEDURES, ENGINEERING CONTROLS, AND WORK PRACTICES

The SSHP shall describe the standard operating safety procedures, engineering controls and safe work practices to be implemented for the work covered. These shall include, but not be limited to, the following:

1.21.1 General Site Rules/Prohibitions

General site rules/prohibitions (buddy system, eating, drinking, and smoking restrictions, etc.). Such rules/prohibitions include:

- a. Work in the Exclusion Zone and Contamination Reduction Zone shall be performed with the "buddy system." Each person working in the

work area shall maintain contact with another person at all times and take responsibility for continual knowledge of that person's status.

- b. Eating, drinking, smoking, chewing gum or tobacco, and other practices that increase the probability of hand-to-mouth transfer and ingestion of material is prohibited within the Exclusion Zone and Contamination Reduction Zone.
- c. Hands and face shall be thoroughly washed upon leaving the work area and before eating, drinking, or other activities.
- d. Whenever decontamination procedures for protective clothing are in effect, the entire body shall be thoroughly washed as soon as possible after the protective clothing is removed.
- e. Medicine and alcohol can increase the effects of exposure to toxic chemicals. Therefore:

(1) Personnel using prescription drugs shall inform the doctor who prescribed them of their potential contact with toxic materials.

(2) Personnel who take over-the-counter drugs within a day before work on a site must inform the SSHO of the warnings listed on the drug's container (the part of the label that says, for example, "Do not take this medication if you are operating a motor vehicle").

(3) Alcoholic beverage intake shall be prohibited during project operations. Personnel under the influence of alcohol or recreational or illegal drugs shall not be allowed on site.

- f. During on site maintenance to be performed on equipment capable of storing and releasing energy, the requirements of 29 CFR 1910.147, lock out/tag out, shall be adhered to by the Contractor and all of his personnel and subcontractors.

1.21.2 Work Permit Requirements

Prior to any excavation work, the New Jersey One-Call System will be contacted for mark-outs of nearest utilities, and utility clearances shall be documented as specified in Section 02310 EXCAVATION. Contractor shall obtain a copy of the New Jersey One-Call mark-out ticket for comparison to field mark-outs prior to commencing any excavation activities.

1.21.3 Confined Space Entry Procedures

Excavations greater than 4 feet in depth shall be considered confined space. Confined space entry procedures are included in Section 1.19 CONFINED SPACE ENTRY PROCEDURES of this specification.

1.21.4 Fire Protection and Prevention

Every member of the site team shall be responsible to observe and report fires and conditions that could lead to fires. The Contractor shall observe the fire prevention and protection requirements described in EM 385-1-1, the USACE Health and Safety Requirements Manual, including:

- a. Do not use fires or open flame devices.
- b. Prohibit smoking within the Exclusion Zone.
- c. Place at least four fire extinguishers, rated at least 20-A:120-B:C within the Exclusion Zone. Another fire extinguisher shall be placed in the Support Zone.

Contractor personnel shall fight fires on site that cannot be controlled through the use of extinguishers, only if the Contractor has designated and trained a fire brigade, as described in OSHA Standard 29 CFR 1910.58. Otherwise, contractor personnel shall quickly evacuate the site and notify the appropriate authorities listed in the SSHP.

Written procedures that address fire protection/prevention consistent with EM 385-1-1 Section 9 (a-k) shall be included in the SSHP: flammable and combustible liquids, liquified petroleum gas, temporary heating devices, first response fire protection, fire fighting equipment, fire detection and employee fire alarm systems, fire fighting organizations training and drilling, fire patrols, and wild land fire control.

1.21.5 Electrical Safety

Electrical installations and appliances used by the Contractor shall meet applicable National Electrical Code specifications. All electrical devices utilized by the Contractor or subcontractors on this project shall be grounded and utilize ground fault circuit interrupter (GFCI) protected outlets.

1.21.6 Excavation and Trench Safety

Perform excavation and trench work in accordance with 29 CFR 1926, Subpart P.

1.21.7 Guarding of Machinery and Equipment

Guard machinery and equipment in accordance with EM 385-1-1 Section 16.B.

1.21.8 Lockout/Tagout

Conduct lockout/tagout operations in accordance with EM 385-1-1 Section 12 (A-E).

1.21.9 Fall Protection

Comply with fall protection procedures in 29 CFR 1926 subpart M.

1.21.10 Hazard Communication

Provide hazard communication in accordance with 29 CFR 1910.1200/29 CFR 1926.59.

1.21.11 Hearing Protection and Noise Control

Measure and document the noise exposure of on-site personnel in compliance with 29 CFR 1910.95 and EM 385-1-1. Institute noise abatement measures to meet the requirements of Occupational Noise Exposure for public health and safety. Contractor personnel shall be provided, as a minimum, protection

against the effects of hazardous noise exposure whenever the sound-pressure level exceeds 85 dB(A) on a 8-hour time weighted-average. When personnel are subjected to sound-pressure levels exceeding the limits specified in the regulations, feasible engineering or administrative controls shall be utilized. If engineering or administrative fail to reduce sound-pressure levels within the specified limit, the Contractor shall evaluate hearing protective devices based on dosimetry using generally accepted calculation methods. Personal protective equipment shall be evaluated, selected, provided and used in accordance with the hearing conservation program.

Sound-pressure level measurements shall be made by qualified personnel using calibrated instruments. Ear insert devices shall be fitted to the exposed individual by an individual trained in such fitting and able to recognize the difference between a good and poor fit. Noise hazard areas shall be marked with caution signs indicating both the presence of hazardous noise levels and the requirement for hearing protection.

1.21.12 Hearing Conservation

Measure and document the noise exposure of on-site personnel in compliance with 29 CFR 1910.95, Occupational Noise Exposure. If necessary, the Contractor shall make hearing protection available to all personnel involved with equipment operation. Whenever employee noise exposures equal or exceed an 8-hour time-weighted average of 85 dB(A), a Hearing Conservation Program shall be implemented including employee notification, audiometric testing, and training per 29 CFR 1910.95(c).

1.21.13 Illumination

Illumination levels in the working zone shall be maintained at a minimum of 10 foot-candles. Supplementary lighting, if necessary, shall be provided by the Contractor.

1.21.14 Sanitation

Provide the following items to maintain a sanitary work environment:

- a. Portable toilet facilities;
- b. A source of potable water for employee consumption;
- c. A source of water and a location at which employees may wash up; and
- d. If food is consumed at the work site, clean locations for food storage and consumption shall be provided.

1.22 TANK PURGING FOR PERMIT-REQUIRED CONFINED SPACE ENTRIES

Tanks shall be purged for confined space entry. The flammable vapors shall be reduced to less than 10% of the LFL and the oxygen content shall be between 19.5% and 23.5%. Confined space entry into the tanks shall not be attempted unless absolutely necessary, as for example, to remove sludge from the tank. When necessary, entry into the tank will be in accordance with permit-required procedures specified in paragraph 1.19 CONFINED SPACE ENTRY of this specification. Flammable vapors may be exhausted from the tank by any of the methods from API RP 1604 listed below, or any method approved by the Contracting Officer. The APP/SSHP shall specify the purging method to be used.

a. Ventilation by Eductor-Type Air Movers: The eductor-type air mover shall be properly bonded and grounded to prevent the generation and discharge of static electricity. When using this method, the fill (drop) tube shall remain in place to ensure ventilation at the bottom of the tank. Tanks equipped with fill (drop) tubes that are not removable shall be purged by this method. An eductor extension shall be used to discharge vapors a minimum of 12 feet above grade or 3 feet above adjacent roof lines, whichever is greater. If this is not possible, alternative methods shall be proposed and approved prior to purging. Noise levels generated by these devices as a result of high airflow may exceed OSHA PELs. Noise levels shall be evaluated and appropriate hearing protection shall be provided.

b. Ventilation by Diffused Air Blowers: When using this purging method, the air-diffusing pipe is properly bonded and grounded to prevent the discharge of a spark. Fill (drop) tubes shall be removed to allow proper diffusion of the air in the tank. Air supply shall be from a compressor that has been checked to ensure that Grade D breathing air is being supplied. Air pressure in the tank shall not exceed 5 psi gauge to avoid tank failure.

c. Commercial Emulsifiers and Volatile Fuel Encapsulators: These products are completely miscible in water, aid in the elimination of flammable vapors, and are biodegradable. Regulatory requirements for treatment and disposal of the water shall be determined prior to using this method. Standing outside the tank, the operator shall rinse the tank with a 3-to-6 percent solution of the product using a pressure sprayer through a tank opening. Explosive concentrations shall be measured at several levels (top, middle, and bottom) within the tank. If readings are greater than 10% of the LFL, the tank shall be rinsed again. When LFL readings are acceptable, the water in the tank shall be pumped out for disposal.

1.23 TANK INERTING (NO ENTRY)

Following the removal of tank contents but prior to excavation of the tanks and tank preparation activities, the tanks shall be inerted only by introducing an inert gas, carbon dioxide (CO₂) or liquid nitrogen (N₂), to remove flammable vapors. Before inerting, all openings in the tanks shall be plugged with threaded or expansion type plugs except the vent tube and the opening to be used for introducing the inert gas. Within 30 minutes prior to initiating any activities (e.g., excavating, preparation, removal, opening, demolition, transportation, or other similar activities) involving a tank which has been inerted, the inerted nature of the tank (oxygen levels less than 8%) shall be verified.

a. CO₂ fire extinguishers shall not be used for inerting the tank interiors. If a compressed gas (e.g., CO₂ or N₂) is introduced into the tank the following requirements shall be met to prevent the buildup of static electricity:

(1) The UST and the compressed gas supply tank shall be bonded together and grounded.

(2) The compressed gas shall be supplied only at low flows.

(3) The liquid or gas shall be released at the tank bottom so that static electricity is not generated by liquid falling to the

bottom of the tank. The tank shall be slowly filled from the bottom up.

b. Dry ice, which evolves CO₂ gas as it evaporates, if used, shall be introduced in the amount of at least 3 lbs per 100 gallons of tank capacity. Skin contact with dry ice shall be prevented by wearing heavy cloth gloves.

c. Sufficient quantities of inert gas (CO₂ or N₂) shall be introduced into the tanks to lower the oxygen content to less than 8%. Pressure inside the tank shall not exceed 5 psi. Prior to proceeding with additional activities on the tank (e.g., excavating), the oxygen content of the tanks shall be monitored to confirm that it is less than 8%. Additional oxygen level monitoring shall be conducted at least hourly while activities involving the tanks are underway but prior to decontamination of tank interiors; at least daily during periods in which the tanks are not being disturbed but prior to decontamination of their interiors; or as directed by the Contracting Officer. If monitoring of tank interiors indicates that oxygen levels are not remaining below 8%, additional inert gas shall be introduced and more frequent oxygen monitoring shall be initiated.

d. During inerting procedures, an extension vent tube a minimum of 12 feet above grade or 3 feet above any adjacent (within 75 feet) roof lines, whichever is greater shall be used to discharge tank vapors. If this is not possible, alternative methods shall be proposed and approved prior to inerting. Continuous combustible gas/oxygen monitoring shall be conducted at the vent and inert gas introduction holes.

1.24 TANK ATMOSPHERE TESTING

The air within the storage tanks shall be monitored to ensure the space is either adequately purged and safe for personnel entry, or to ensure the tank has been adequately inerted and the oxygen content is less than 8%. In both instances, monitoring shall be performed at the top, bottom, and middle areas of the tanks to ensure stratification has not occurred. Monitoring results shall be reported to project personnel to ensure safe operations. Data shall be recorded as specified in paragraph EXPOSURE MONITORING/AIR SAMPLING PROGRAM.

1.24.1 Monitoring to Ensure Purging

When monitoring to ensure purging, both oxygen content and LFL readings are required. Prior to obtaining LFL readings, the Contractor shall monitor the oxygen content of the space and verify that the combustible gas indicators are operating within the oxygen limits identified by the CGI manufacturer. Personnel shall not be permitted to enter spaces with oxygen levels less than 19.5%, except in emergencies, and then only when equipped with the proper PPE and when following permit-required confined space entry procedures. Toxic air contaminants shall be monitored as specified in paragraph EXPOSURE MONITORING/AIR SAMPLING PROGRAM.

1.24.2 Monitoring to Ensure Inerting

Inerted tanks shall be monitored to ensure oxygen readings remain below a maximum allowable percentage of 8% by volume.

1.25 TANK LIFTING

Tanks shall be lifted using equipment with a rated capacity greater than the load to be lifted. Tanks shall be lifted by lifting eyes or by straps under the ends of the tanks. Tanks shall not be lifted by the manhole flange or by removing the bungs. Personnel shall be directed to remain away from the ends of the tanks and tanks shall be positioned, whenever possible, with the ends oriented away from occupied or traveled areas, due to potential for rupture. During transportation, the tanks shall be secured to prevent movement.

1.26 TANK DEMOLITION

Excavated tanks shall be demolished before being removed from the site unless they are transported directly to a state certified tank destruction facility. Demolition will not be permitted until a decontamination of the interiors and exteriors is complete. Demolition shall involve opening the tanks sufficiently to permanently prohibit further use as containers of liquids. Tanks shall be inerted and tested before they are opened. Plans and procedures, including a list of materials and supplies, for safely and effectively demolishing the tanks shall be submitted in the APP/SSHP.

1.27 TANK CLEANING

Safety practices and procedures for the cleaning of the storage tanks shall conform to API Std 2015. Opening of the tanks to permit decontamination shall be conducted utilizing only methods approved in the APP/SSHP. The interior and exterior of the tank shall be decontaminated prior to removing it from the work site unless the tank is being transported directly to a state certified tank destruction facility. Plans and procedures, including materials and supplies, for safely and effectively opening the tanks, cleaning surfaces of the interior and exterior of the tanks, and disposing of the decontamination fluids shall be submitted in the SSHP. Volatile organic solvents shall not be permitted to be utilized for decontamination procedures. Personnel shall not enter any of the storage tanks as a part of this project, except when following permit-required confined space entry procedures. Decontamination fluids shall be collected and disposed. Upon completion of this project, written certification shall be made that the tank was properly decontaminated prior to being removed from the site.

1.28 SITE CONTROL MEASURES

To prevent the spread of contamination and control the flow of personnel, vehicles, and materials into and out of work areas, site control measures shall be established and described in the SSHP. The SSHP shall describe the methodology to be used by the Safety and Health Manager and SSHO in determining work zone designations and their modifications, and procedures to limit the spread of contamination. The SSHP shall include procedures for the implementation and enforcement of safety and health rules for all persons on the site, including employers, employees, outside Contractors, government representatives, and visitors.

1.28.1 Work Zones

Initial anticipated limits of construction are shown on the Work Zone Drawings. Using this guidance, work zone boundaries (Exclusion Zone, including restricted and regulated areas; Contamination Reduction Zone; and Support Zone) and access points shall be established and the boundary delineations shall be included in the SSHP. Delineation of work zone

boundaries shall be based on the contamination characterization data and the hazard/risk analysis to be performed as described in paragraph: HAZARD/RISK ANALYSIS. As work progresses and field conditions are monitored, work zone boundaries may be modified with approval of the Contracting Officer's Representative or the Designated Representative. Work zones shall be clearly identified and marked in the field (using fences, tape, signs, etc.). A site map, showing work zone boundaries and locations of decontamination facilities, shall be posted in the on-site office. Work zones shall consist of the following:

1.28.1.1 Exclusion Zone (EZ)

The EZ is the area where hazardous contamination is either known or expected to occur and the greatest potential for exposure exists. All building or structure demolition areas shall be designated as the EZ for that cluster. Entry into this area shall be controlled and exit may only be made through the Contamination Reduction Zone (CRZ).

1.28.1.2 Contamination Reduction Zone (CRZ)

The CRZ is the transition area between the EZ and the Support Zone. The personnel and equipment decontamination areas shall be separate and unique areas located in the CRZ.

1.28.1.3 Support Zone (SZ)

The Support Zone is defined as areas of the site, other than Exclusion Zones and Contamination Reduction Zones, where workers do not have the potential to be exposed to hazardous substances or dangerous conditions resulting from hazardous waste operations. The SZ shall be secured against active or passive contamination. Site offices, parking areas, and other support facilities shall be located in the SZ.

1.28.2 Site Control Log

A Site Control Entry/Exit Log of personnel visiting, entering, or working on the site shall be maintained. The log shall include the following: date, name, agency or company, time entering and exiting site, time entering and exiting the Exclusion Zone (if applicable), and personal protective equipment utilized. Before visitors are allowed to enter the Contamination Reduction Zone or Exclusion Zone, they shall show proof of current training, medical surveillance and respirator fit testing (if respirators are required for the tasks to be performed) and shall fill out the Certificate of Worker or Visitor Acknowledgment. This visitor information, including date, shall be recorded in the log.

1.28.3 Communication

The SSHP shall identify the method by which Contractor personnel will communicate in the event of an emergency. An alarm system with means of on-site and off-site communication shall be provided and installed in accordance with 29 CFR 1910.165. Communications with the office trailer, if it is outside vocal range, will be by radio. Communications between Contractor and other organizations (e.g., the Contracting Officer's Representative or the emergency response contractor) will be over the telephone. At least the following emergency telephone numbers must appear in the SSHP.

Name, address, and phone number of medical treatment facility and

physician;

Ambulance service's telephone number;

Fire department's telephone number;

Police department's telephone number;

EPA Region II's telephone number;

NJDEP spill control phone numbers; and

Contracting Officer's Representative's telephone number.

1.28.4 Site Security

Site security shall be specified in the SSHP and in accordance with Section 01110 SUMMARY OF WORK.

1.29 CONTAMINATION MONITORING, DECONTAMINATION, AND PERSONAL HYGIENE

Personnel entering the Exclusion or Contamination Reduction Zones or otherwise exposed or subject to exposure to hazardous chemical contaminated material vapors, liquids, or contaminated solids shall adhere to approved contamination monitoring, decontamination, and personal hygiene protocol, which will be detailed in the SSHP. Contamination monitoring and decontamination shall be performed in the CRZ prior to entering the Support Zone from the Exclusion Zone. Chapter 10.0 of NIOSH 85-115 shall be consulted when preparing decontamination procedures. Employees shall be trained in the procedures and the procedures shall be enforced throughout site operations. Persons disregarding these provisions of the SSHP shall be barred from the site. Minimum acceptable contamination limits are provided in tables 01351A-1 and 01351A-2 in the Action Levels paragraph.

1.29.1 Decontamination Facilities

A personnel decontamination facility shall be provided in the CRZ. This facility shall be used by both Contractor personnel and government representatives. The decontamination facility shall provide for separation of street clothing and contaminated PPE and shall be equipped with heating, lighting, ventilation, a change room and lockers, hot and cold water, towels, soap in sufficient quantities for all anticipated personnel, and waste water storage facilities for controlling the disposal of used water.

1.29.2 Procedures

The SSHP shall outline procedures to be used for contamination monitoring and decontamination of site personnel.

Personnel performing or supervising remedial work within the EZ or CRZ or those workers exposed (or subject to exposure) to hazardous chemical contaminated material vapors, liquids, or contaminated solids shall be instructed by the Contractor in the requirements and advised to observe and adhere to the personal hygiene-related provisions of this paragraph. A detailed discussion of personnel contamination monitoring, decontamination, and sanitation protocols to be followed by site workers shall be submitted as part of the SSHP.

Any person found to be disregarding the personal hygiene-related provisions

of the SSHP shall be barred from the site. The following personal hygiene conditions and procedures shall be followed by personnel exiting the EZ:

- a. Contained storage and legal disposal of used disposable outerwear shall be provided.
- b. All outerwear shall be removed prior to entering the lunch area or smoking area, and prior to washing hands.
- c. All personnel shall be monitored for contamination prior to exiting the site.
- d. Hand and face washing facilities shall be provided.
- e. Contractor personnel shall be required to thoroughly clean their hands and other exposed areas before entering the smoking or lunch area.
- f. A facility for changing into and out of and storing work clothing separate from street clothing shall be provided.
- g. Disposable outerwear shall not be reused, and when removed, shall be placed inside disposal containers provided for that purpose located in the CRZ.
- h. Smoking and chewing of tobacco or chewing gum shall be prohibited except in a designated smoking area, provided by the Contractor, in the SZ.
- i. Eating and drinking shall be prohibited except in a designated lunch or break area, provided by the Contractor in the SZ.

1.30 EQUIPMENT DECONTAMINATION

Vehicles and equipment used in the EZ shall be monitored for contamination and decontaminated in the CRZ prior to leaving the site. The procedures for contamination monitoring and decontamination of vehicles and equipment shall be addressed in the SSHP. All monitoring and decontamination results shall be submitted to the Contracting Officer's Representative in a timely manner.

1.30.1 Decontamination Facilities

An equipment decontamination station shall be provided within the CRZ for decontaminating vehicles and equipment leaving the EZ. The decontamination station shall include the following: A traffic surface pad of sufficient strength to support traffic. The pad shall be constructed to capture decontamination water, including overspray, and shall allow for collection and removal of the decontamination water using sumps, dikes and ditches as required. In addition, the following facilities will also be included: high-pressure, low volume, water wash area for equipment and vehicles; a steam cleaning system for use after the mud and/or site material has been cleaned from the equipment; a designated "clean area" in the CRZ for performing equipment maintenance. Equipment within the EZ or CRZ shall be decontaminated before maintenance is performed.

1.30.2 Procedures

Procedures for equipment decontamination shall be developed and used to

prevent the spread of contamination into the SZ and off site areas. These procedures shall address disposal of contaminated products and spent materials used on the site, including containers, fluids, oils, etc. The production of large quantities of contaminated water should be avoided. Dry decontamination techniques should be utilized where possible, and all equipment decontamination water will be collected for characterization. Any item taken into the EZ shall be assumed to be contaminated and shall be inspected and/or decontaminated before the item leaves the area. Vehicles, equipment, and materials shall be cleaned and decontaminated prior to leaving the site.

Construction material shall be handled in such a way as to minimize the potential for contaminants being spread and/or carried off site. Prior to exiting the site, vehicles and equipment shall be monitored to ensure the adequacy of decontamination.

1.31 EMERGENCY EQUIPMENT AND FIRST AID REQUIREMENTS

An Emergency Response Plan that meets the requirements of 29 CFR 1910, Section 120 (1), and 29 CFR 1926, Section 65 (1), shall be developed and implemented as a section of the SSHP. In the event of any emergency associated with remedial action, the Contractor shall, without delay, alert all on-site employees that there is an emergency situation; take action to remove or otherwise minimize the cause of the emergency; alert the Contracting Officer's Representative; and institute measures necessary to prevent repetition of the conditions or actions leading to, or resulting in, the emergency. Employees that are required to respond to hazardous emergency situations shall be trained to respond to such expected emergencies. The plan shall be rehearsed regularly as part of the overall training program for site operations. The plan shall be reviewed periodically and revised as necessary to reflect new or changing site conditions or information. The following elements, as a minimum, shall be addressed in the plan:

- a. Meetings with the local emergency response agencies shall be held during preparation of the Emergency Response Plan. Agencies to be contacted include local fire, police, and rescue authorities with jurisdiction and nearby medical facilities that may be utilized for emergency treatment of injured personnel. At these meetings, the agencies shall be notified of upcoming site activities and potential emergency situations. The response capabilities shall be ascertained and a response commitment obtained. The Contractor shall ensure the Emergency Response Plan for the site is compatible and integrated with the disaster, fire and/or emergency response plans of local, state, and federal agencies. Prior to commencing work, the Contractor shall contact the nearest medical provider and advise them as to where the work is located and for when it is scheduled.
- b. Personnel roles, lines of authority, communications for emergencies.
- c. Emergency recognition and prevention.
- d. Site topography, layout, and prevailing weather conditions.
- e. Criteria and procedures for site evacuation (emergency alerting procedures, employee alarm system, emergency PPE and equipment, safe distances, places of refuge, evacuation routes, site security

and control).

- f. Specific procedures for decontamination and medical treatment of injured personnel.
- g. Route maps to nearest prenotified medical facility. Site-support vehicles shall be equipped with maps. At the beginning of project operations, drivers of the support vehicles shall become familiar with the emergency route and the travel time required. The Contractor shall visit the hospital designated in the SSHP to determine whether they can handle the types of injury (including chemically contaminated patients) that might occur at the site.
- h. Emergency alerting and response procedures including posted instructions and a list of names and telephone numbers of emergency contacts (physician, nearby medical facility, fire and police departments, ambulance service, Federal, State, and local environmental agencies; as well as Safety and Health Manager, the Site Superintendent, the Contracting Officer's Representative and/or their alternates).
- i. Criteria for initiating community alert program, contacts, and responsibilities.
- j. Procedures for reporting incidents to appropriate government agencies. In the event that an incident such as an explosion or fire, or a spill or release of toxic materials occurs during the course of the project, the appropriate government agencies shall be immediately notified. In addition, the Contracting Officer's Representative shall be verbally notified immediately and receive a written notification within 24 hours. The report shall include the following items:
 - (1) Name, organization, telephone number, and location of the Contractor;
 - (2) Name and title of the person(s) reporting;
 - (3) Date and time of the incident;
 - (4) Location of the incident (i.e., site location, facility name);
 - (5) Brief summary of the incident giving pertinent details including type of operation ongoing at the time of the incident;
 - (6) Cause of the incident, if known;
 - (7) Casualties (fatalities, disabling injuries);
 - (8) Details of any existing chemical hazard or contamination;
 - (9) Estimated property damage, if applicable;
 - (10) Nature of damage, effect on contract schedule;
 - (11) Action taken to ensure safety and security; and
 - (12) Other damage or injuries sustained, public or private.

- k. Procedures for critique of emergency responses and follow-up.

1.32 EMERGENCY RESPONSE AND CONTINGENCY PROCEDURES

An Emergency Response Plan, that meets the requirements of 29 CFR 1910.120 (1) and 29 CFR 1926.65 (1), shall be developed and implemented as a section of the APP/SSHPP. In the event of any emergency associated with remedial action, the Contractor shall, without delay, alert all onsite employees and as necessary offsite emergency responders that there is an emergency situation; take action to remove or otherwise minimize the cause of the emergency; alert the Contracting Officer; and institute measures necessary to prevent repetition of the conditions or actions leading to, or resulting in, the emergency. Employees that are required to respond to hazardous emergency situations shall be trained to their level of responsibility according to 29 CFR 1910.120 (q) and 29 CFR 1926.65 (q) requirements. The plan shall be rehearsed regularly as part of the overall training program for site operations. The plan shall be reviewed periodically and revised as necessary to reflect new or changing site conditions or information. Copies of the Emergency Response Portion of the accepted APP/SSHPP shall be provided to the affected local emergency response agencies. The following elements, as a minimum, shall be addressed in the plan:

- a. Pre-emergency planning. The Contractor shall coordinate with local emergency response providers during preparation of the Emergency Response Plan. At a minimum, coordinate with local fire, rescue, hazardous materials response teams, police and emergency medical providers to assure all organizations are capable and willing to respond to and provide services for on-site emergencies. The Contractor shall ensure the Emergency Response Plan for the site is compatible and integrated with the local fire, rescue, medical and police security services available from local emergency response planning agencies.
- b. Personnel roles, lines of authority, communications for emergencies.
- c. Emergency recognition and prevention.
- d. Site topography, layout, and prevailing weather conditions.
- e. Criteria and procedures for site evacuation (emergency alerting procedures, employee alarm system, emergency PPE and equipment, safe distances, places of refuge, evacuation routes, site security and control).
- f. Specific procedures for decontamination and medical treatment of injured personnel.
- g. Route maps to nearest prenotified medical facility. Site-support vehicles shall be equipped with maps. At the beginning of project operations, drivers of the support vehicles shall become familiar with the emergency route and the travel time required.
- h. Emergency alerting and response procedures including posted instructions and a list of names and telephone numbers of emergency contacts (physician, nearby medical facility, fire and police departments, ambulance service, Federal, state, and local environmental agencies; as well as Safety and Health Manager, the Site Superintendent, the Contracting Officer and/or their alternates).

i. Criteria for initiating community alert program, contacts, and responsibilities.

j. Procedures for reporting incidents to appropriate government agencies. In the event that an incident such as an explosion or fire, or a spill or release of toxic materials occurs during the course of the project, the appropriate government agencies shall be immediately notified. In addition, the Contracting Officer and the local district safety office shall be verbally notified immediately and receive a written notification within 24 hours. The report shall include the following items:

- (1) Name, organization, telephone number, and location of the Contractor.
- (2) Name and title of the person(s) reporting.
- (3) Date and time of the incident.
- (4) Location of the incident, i.e., site location, facility name.
- (5) Brief summary of the incident giving pertinent details including type of operation ongoing at the time of the incident.
- (6) Cause of the incident, if known.
- (7) Casualties (fatalities, disabling injuries).
- (8) Details of any existing chemical hazard or contamination.
- (9) Estimated property damage, if applicable.
- (10) Nature of damage, effect on contract schedule.
- (11) Action taken to ensure safety and security.
- (12) Other damage or injuries sustained, public or private.

k. Procedures for critique of emergency responses and follow-up.

1.33 ACCIDENT PREVENTION

An Accident Prevention Plan shall be developed meeting the requirements of Section 01525 SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS. Daily safety and health inspections shall be conducted to ensure that the work is being performed in accordance with the SSHP and all USACE and OSHA regulations. If there is an accident/incident, the Contracting Officer shall be notified immediately and an Accident Report filed within two days.

1.34 CERTIFICATE OF WORKER/VISITOR ACKNOWLEDGEMENT

A copy of a Contractor-generated certificate of worker/visitor acknowledgement shall be completed and submitted for each visitor allowed to enter Contamination Reduction or Exclusion Zones, and for each employee, following the example certificate at the end of this section.

1.35 INSPECTIONS

The SSHA shall perform daily inspections of the job site and the work in

progress to ensure compliance with EM 385-1-1, the Safety and Health Program, the SSHP and other occupational health and safety requirements of the Contract, and to determine the effectiveness of the SSHP. Procedures for correcting deficiencies (including actions, timetable and responsibilities) shall be described in the SSHP. Follow-up inspections to ensure correction of deficiencies shall be conducted and documented. Daily safety inspection logs shall be used to document the inspections, noting safety and health deficiencies, deficiencies in the effectiveness of the SSHP, and corrective actions taken. The SSHO's Daily Inspection Log shall be attached to and submitted with the Daily Quality Control Reports. Each entry shall include the date, work area checked, employees present in work area, PPE and work equipment being used in each area, special safety and health issues and notes, and signature of preparer. In the event of an accident, the Contracting Officer's Representative shall be notified according to EM 385-1-1, Section 01.D. Within two working days of any reportable accident, an Accident Report shall be completed on ENG Form 3394 and submitted.

1.36 MONTHLY EXPOSURE REPORTS

Monthly exposure reporting to the Contracting Officer is required to be attached to the monthly billing request. This report is a compilation of employee-hours worked each month for all site workers, both prime and subcontractor. The Contracting Officer will provide copies of any special forms.

1.37 DUST AND EMISSION CONTROL

Dust control shall be used throughout the work at the site. A separate Dust Control Plan shall be referenced in the Site Safety and Health Plan (SSHP) and be incorporated by reference in the Air Monitoring Plan. The Dust Control Plan shall be submitted no later than 30 days after the NTP. The Dust Control Plan shall identify materials, equipment, and methods to be used to monitor and control dust during project operations, including provisions for supplying clean water and supplying trailer-mounted water spraying equipment. At a minimum, the following provisions shall be incorporated into the Dust Control Plan:

- a. The use of real-time airborne monitoring equipment to measure dust levels along the perimeter of the excavations and at the site perimeter.
- b. The use of water-based dust suppressing agent to prevent the creation and dispersion of dust. Methods that generate slippery conditions or sticky mud shall be avoided.
- c. Trucks carrying the debris shall be covered and sealed to control dust releases and shall have a double, positive locking mechanism on the tailgates.
- d. Haul roads shall be treated as necessary to minimize dusty conditions.
- e. The SSHO shall ensure that dust suppression practices are effective and being utilized.

1.38 SAFETY AND HEALTH PHASE-OUT REPORT

A Safety and Health Phase-Out Report shall be submitted within 10 days

following completion of the work, prior to final acceptance of the work.
The following minimum information shall be included:

- a. Summary of the overall performance of safety and health (accidents or incidents including near misses, unusual events, lessons learned, etc.).
- b. Final decontamination documentation including procedures and techniques used to decontaminate equipment, vehicles, and on-site facilities.
- c. Summary of exposure monitoring and air sampling accomplished during the project.
- d. Signatures of Safety and Health Manager and SSHO.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

TASK HAZARD AND CONTROL REQUIREMENTS SHEET

Task _____

Initial Anticipated Hazards _____

Initial PPE _____

Initial Controls _____

Initial Exposure Monitoring _____

HAZWOPER Medical Surveillance Required yes no

HAZWOPER Training Required yes no

EXAMPLE CERTIFICATE OF WORKER/VISITOR ACKNOWLEDGMENT

PROJECT NAME

CONTRACT NO.

PROJECT ADDRESS

CONTRACTOR'S NAME

(EMPLOYEE'S) (VISITOR'S) NAME

The contract for the above project requires the following: that you be provided with and complete formal and site-specific training; that you be supplied with proper personal protective equipment excluding respirators; that you be trained in its use; and that you receive a medical examination to evaluate your physical capacity to perform your assigned work tasks, under the environmental conditions expected, while wearing the required personal protective equipment. These things are to be done at no cost to you. By signing this certification, you are acknowledging that your employer has met these obligations to you.

I HAVE READ, UNDERSTAND AND AGREE TO FOLLOW THE SITE SAFETY AND HEALTH PLAN FOR THIS SITE.

Name

Date

FORMAL TRAINING: I have completed the following formal training courses that meet OSHA's requirements:

	Date Completed
40 hour:	_____
8 hour supervisory:	_____
8 hour refresher:	_____

SITE-SPECIFIC TRAINING: I have completed the site-specific training required by this Contract. The Site Safety and Health Officer conducted the training.

RESPIRATORY PROTECTION: I have been trained in accordance with the criteria in (the Contractor's) (my Employer's) Respiratory Protection program. I have been trained in the proper work procedures and use and limitations of the respirator(s) I will wear. I have been trained in and will abide by the facial hair policy.

RESPIRATOR FIT-TEST TRAINING: I have been trained in the proper selection, fit, use, care, cleaning, and maintenance, and storage of the respirator(s) that I will wear. I have been fit-tested in accordance with the criteria in (the Contractor's) (my employer's) Respiratory Program and have received a satisfactory fit. (I have been assigned my individual respirator.) I have been taught how to properly perform positive and negative pressure fit-check upon donning negative pressure respirators each time.

MEDICAL EXAMINATION: I have had a medical examination within the last twelve months that was paid for by my employer. The examination included health history, pulmonary function tests, and may have included an evaluation of a chest X-ray. A physician made determination regarding my physical capacity to perform work tasks on the project while wearing protective equipment including a respirator. I was personally provided a copy and informed of the results of that examination. My employer's industrial hygienist evaluated the medical certification provided by the physician and checked the appropriate blank below. The physician determined that there:

_____ were no limitations to performing the required work tasks;

_____ were identified physical limitations to performing the required work tasks.

Date medical exam completed: _____

(Employee's) (Visitor's) Signature: _____

Date: _____

Printed Name: _____

Social Security Number: _____

Contractor's Site Safety and Health Officer Signature:

Printed Name: _____

Date: _____

Social Security Number: _____

-- End of Section --

SECTION 01356A

STORM WATER POLLUTION PREVENTION MEASURES

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D 4439	(2002) Geosynthetics
ASTM D 4491	(1999a) Water Permeability of Geotextiles by Permittivity
ASTM D 4533	(2004) Trapezoid Tearing Strength of Geotextiles
ASTM D 4632	(1991; R 2003) Grab Breaking Load and Elongation of Geotextiles
ASTM D 4751	(2004) Determining Apparent Opening Size of a Geotextile
ASTM D 4873	(2002) Identification, Storage, and Handling of Geosynthetic Rolls and Samples

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP)

NJDEP DSW	General Permit for Construction Activity Stormwater
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NEW JERSEY ADMINISTRATIVE CODE (NJAC)

NJAC 7:14	Water Pollution Control Act, including 7:14A, Pollutant Discharge Elimination System
-----------	--

NEW JERSEY STATE SOIL CONSERVATION COMMITTEE (SCS)

SCS Standards	Standards for Soil Erosion and Sediment Control in New Jersey (July 1999)
---------------	---

1.2 GENERAL

The Contractor shall implement the storm water pollution prevention measures specified in this section in a manner which will meet the requirements of Section 01110 SUMMARY OF WORK and the requirements of the National Pollution Discharge Elimination System (NPDES) permit for the project.

Contractor shall construct and maintain erosion and sediment control

structures in accordance with SCS Standards and the Freehold Conservation District requirements.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Soil Erosion and Sediment Control Plan; G

SD-07 Certificates

Mill Certificate or Affidavit;

Certificate attesting that the Contractor has met all specified requirements.

1.4 EROSION AND SEDIMENT CONTROLS

Develop, implement, maintain, supervise, and be responsible for a comprehensive Soil Erosion and Sediment Control Plan that is certified by the New Jersey Natural Resources Conservation Program. The plan shall be submitted 14 days prior to the Pre-Work Conference and no later than 30 days after the Notice to Proceed. The Plan shall specifically address each work area; multiple submittals are expected as work progresses. The purpose of this plan is to prevent runoff from the site entering and polluting surface waters, air, land, or groundwater.

Comply with NJAC 7:14 Appendix B, NJDEP DSW, and the SCS Standards.

In accordance with Section 02310 EXCAVATION, the Contracting Officer has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing and excavation and fill operations; and to direct the Contractor to provide immediate, permanent, or temporary pollution control measures to prevent contamination of adjacent properties, streams, or other watercourses. Such work may involve the use of temporary mulches, mats, seeding, or other control devices or methods as necessary to control erosion. Cut and fill slopes shall be seeded and mulched as the excavation proceeds, to the extent directed by the Contracting Officer. Incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in the accepted schedule. Temporary pollution control measures shall be used to correct conditions that develop during construction; that are needed prior to installation of permanent pollution control features; or that are needed temporarily to control erosion that develops during normal construction practices but are not associated with permanent control features on the project.

In the event of conflict between these requirements and pollution control laws, rules or regulations, or other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

Contractor shall control sediment at the washdown facilities, control sediment that may be entrained by rainwater running off the site, curtail work, and reduce the exposed surface when heavy rain is predicted.

The controls and measures required by the Contractor are described below.

1.4.1 Stabilization Practices

The stabilization practices to be implemented shall include temporary seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, erosion control matts, protection of trees, preservation of mature vegetation, etc. On the daily CQC Report, the Contractor shall record the dates when the major grading activities occur (e.g., excavation, demolition, and grading); when construction activities temporarily or permanently cease on a portion of the site; and when stabilization practices are initiated. Except as provided in paragraphs UNSUITABLE CONDITIONS and NO ACTIVITY FOR LESS THAN 21 DAYS, stabilization practices shall be initiated as soon as practicable, but no more than 14 days, in any portion of the site where construction activities have temporarily or permanently ceased.

1.4.1.1 Unsuitable Conditions

Where the initiation of stabilization measures by the fourteenth day after construction activity temporarily or permanently ceases is precluded by unsuitable conditions caused by the weather, stabilization practices shall be initiated as soon as practicable after conditions become suitable.

1.4.1.2 No Activity for Less Than 21 Days

Where construction activity will resume on a portion of the site within 21 days from when activities ceased (e.g., the total time period that construction activity is temporarily ceased is less than 21 days), then stabilization practices do not have to be initiated on that portion of the site by the fourteenth day after construction activity temporarily ceased.

1.4.2 Structural Practices

Structural practices shall be implemented to divert flows from exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Contractor shall implement structural practices as necessary to provide storm sewer inlet protection meeting the requirements of the Standard for Storm Sewer Inlet Protection, Ch.30 of the SCS Standards. Structural practices shall be implemented in a timely manner during the construction process to minimize erosion and sediment runoff. Structural practices shall include the following devices and shall meet the requirements of Ch.25 of the SCS Standards.

1.4.2.1 Silt Fences

The Contractor shall provide silt fences as a temporary structural practice to minimize erosion and sediment runoff. Silt fences shall be properly installed to effectively retain sediment immediately after completing each phase of work where erosion would occur in the form of sheet and rill erosion (e.g. clearing and grubbing, excavation, embankment, and grading). Silt fences shall be installed in the locations indicated on the drawings and field determined as required to control erosion. Final removal of silt fence barriers shall be upon approval by the Contracting Officer.

1.4.2.2 Straw Bales

The Contractor shall provide bales of straw as a temporary structural practice to minimize erosion and sediment runoff. Bales shall be properly

placed to effectively retain sediment immediately after completing each phase of work (e.g., clearing and grubbing, excavation, embankment, and grading) in each independent runoff area (e.g., after clearing and grubbing in an area between a ridge and drain, bales shall be placed as work progresses; bales shall be removed/replaced/relocated as needed for work to progress in the drainage area). Areas where straw bales are to be used are shown on the drawings and as field determined as required to control erosion. Final removal of straw bale barriers shall be upon approval by the Contracting Officer. At minimum, rows of bales of straw shall be provided as follows:

- a. Along the downhill perimeter edge of all areas disturbed.
- b. Perpendicular to the flow in the bottom of new drainage ditches, channels, and swales. Rows shall be spaced as shown on the drawings and field determined as required to control erosion.
- c. At the entrance to storm receivers and culverts that receive runoff from disturbed areas.

1.4.2.3 Stabilized Construction Access

Contractor shall construct a stabilized construction access meeting the requirements of the Standard for Stabilized Construction Access, Ch.29 of the SCS Standards, for ingress and egress to the construction area.

PART 2 PRODUCTS

2.1 COMPONENTS FOR SILT FENCES

2.1.1 Filter Fabric

The geotextile shall comply with the requirements of ASTM D 4439, and shall consist of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. The filament shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of ester, propylene, or amide, and shall contain stabilizers and/or inhibitors added to the base plastic to make the filaments resistance to deterioration due to ultraviolet and heat exposure. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of 0 to 120 degrees F. The fabric shall incorporate a drawstring in the top portion of the fence for added strength. The filter fabric shall meet the following requirements:

FILTER FABRIC FOR SILT SCREEN FENCE

PHYSICAL PROPERTY	TEST PROCEDURE	STRENGTH REQUIREMENT
Grab Tensile	ASTM D 4632	100 lbs. min.
Elongation (%)		30 % max.
Trapezoid Tear	ASTM D 4533	55 lbs. min.
Permittivity	ASTM D 4491	0.2 sec-1
AOS (U.S. Std Sieve)	ASTM D 4751	20-100

2.1.2 Silt Fence Stakes and Posts

The Contractor may use either wooden stakes or steel posts for fence construction. Wooden stakes utilized for silt fence construction, shall have a minimum cross section of 2 inches by 2 inches when oak is used and 4 inches by 4 inches when pine is used, and shall have a minimum length of 5 feet. Steel posts (standard "U" or "T" section) utilized for silt fence construction, shall have a minimum weight of 1.33 pounds per linear foot and a minimum length of 5 feet.

2.1.3 Mill Certificate or Affidavit

A mill certificate or affidavit shall be provided attesting that the fabric and factory seams meet chemical, physical, and manufacturing requirements specified above. The mill certificate or affidavit shall specify the actual Minimum Average Roll Values and shall identify the fabric supplied by roll identification numbers. The Contractor shall submit a mill certificate or affidavit signed by a legally authorized official from the company manufacturing the filter fabric.

2.1.4 Identification Storage and Handling

Filter fabric shall be identified, stored and handled in accordance with ASTM D 4873.

2.2 COMPONENTS FOR STRAW BALES

The straw in the bales shall be stalks from oats, wheat, rye, barley, rice, or from grasses such as byhalia, bermuda, etc., furnished in air dry condition. The bales shall have a standard cross section of 14 inches by 18 inches. All bales shall be either wire-bound or string-tied. The Contractor may use either wooden stakes or steel posts to secure the straw bales to the ground. Wooden stakes utilized for this purpose, shall have a minimum dimensions of 2 inches x 2 inches in cross section and shall have a minimum length of 3 feet. Steel posts (standard "U" or "T" section) utilized for securing straw bales, shall have a minimum weight of 1.33 pounds per linear foot and a minimum length of 3 feet.

PART 3 EXECUTION

3.1 INSTALLATION OF SILT FENCES

Silt fences shall extend a minimum of 24 inches above the ground surface and shall not exceed 34 inches above the ground surface. Filter fabric shall be from a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are unavoidable, filter fabric shall be spliced together at a support post, with a minimum 6 inch overlap, and securely sealed. A trench shall be excavated approximately 4 inches wide and 6 inches deep on the upslope side of the location of the silt fence. The 4-inch by 6-inch trench shall be backfilled and the soil compacted over the filter fabric. Silt fences shall be removed upon approval by the Contracting Officer.

3.2 INSTALLATION OF STRAW BALES

Straw bales shall be placed in paved areas where the excavation of an anchor trench is not feasible. Use sand bags on either side of the bales to secure them from movement.

3.3 MAINTENANCE

The Contractor shall maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition by performing routine inspections to determine condition and effectiveness, by restoration of destroyed vegetative cover, and by repair of erosion and sediment control measures and other protective measures. The following procedures shall be followed to maintain the protective measures.

3.3.1 Silt Fence Maintenance

Silt fences shall be inspected in accordance with paragraph INSPECTIONS. Any required repairs shall be made within 24 hours of the discrepancy's discovery.. Close attention shall be paid to the repair of damaged silt fence resulting from end runs and undercutting. Should the fabric on a silt fence decompose or become ineffective, and the barrier is still necessary, the fabric shall be replaced within 24 hours of the discrepancy's discovery. Sediment deposits shall be removed when deposits reach one-third of the height of the barrier. When a silt fence is no longer required, it shall be removed. The immediate area occupied by the fence and any sediment deposits shall be shaped to an acceptable grade. The areas disturbed by this shaping shall receive erosion control if required.

3.3.2 Straw Bale Maintenance

Straw bale barriers shall be inspected in accordance with paragraph INSPECTIONS. Close attention shall be paid to the repair of damaged bales, end runs and undercutting beneath bales. Necessary repairs to barriers or replacement of bales shall be accomplished within 24 hours of the discrepancy's discovery. Sediment deposits shall be removed when deposits reach one-half of the height of the barrier. Bale rows used to retain sediment shall be turned uphill at each end of each row. When a straw bale barrier is no longer required, it shall be removed. The immediate area occupied by the bales and any sediment deposits shall be shaped to an acceptable grade.

3.4 INSPECTIONS

3.4.1 General

The Contractor shall inspect disturbed areas of the construction site, areas used for storage of materials that are exposed to precipitation that have not been finally stabilized, stabilization practices, structural practices, other controls, and area where vehicles exit the site at least once every seven (7) calendar days and within 24 hours of the end of any storm that produces 0.5 inches or more rainfall at the site. Where sites have been finally stabilized, such inspection shall be conducted at least once every month.

3.4.2 Inspections Details

Disturbed areas and areas used for material storage that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the Soil Erosion and Sediment Control Plan shall be observed to ensure that they are operating correctly. Discharge locations or points shall be inspected to ascertain whether erosion control measures

are effective in preventing significant impacts to receiving waters. Locations where vehicles exit the site shall be inspected for evidence of offsite sediment tracking.

3.4.3 Inspection Reports

For each inspection conducted, the Contractor shall prepare a report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the Soil Erosion and Sediment Control Plan, maintenance performed, and actions taken. The report shall be furnished to the Contracting Officer within 24 hours of the inspection as a part of the Contractor's daily CQC REPORT. A copy of the inspection report shall be maintained on the job site.

-- End of Section --

SECTION 01380

PROJECT PHOTOGRAPHS

PART 1 GENERAL

1.1 SCOPE OF WORK

The Contractor shall furnish color photographs, taken on a digital camera by an experienced professional photographer using suitable equipment, to record the important features of the site prior to the commencement of work, during construction, and after the work has been completed. The Contractor shall not be permitted to take its own photographs for use as a submittal under this section.

The actual number and location of views to be taken will be as directed by the Contracting Officer. All photographs are government property and shall not be released by the Contractor to the public or news media.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-11 Closeout Submittals

Pre-Construction and Post Construction Photographs; G

Progress Photographs; (FIO)

1.2.1 Pre-Construction and Post Construction Photographs

The Contractor shall submit to the Contracting Officer prints of photographs taken prior to the commencement of work (pre-construction) and after the completion of work (post-construction)

1.2.2 Progress Photographs

The Contractor shall submit to the Contracting Officer prints of construction progress.

1.3 PRE-CONSTRUCTION PHOTOGRAPHS

Before work begins, the Contractor shall document existing conditions by taking a minimum of 50 exposures including views of the general site showing all areas affected by the project, including the remedial action area and all areas used for project support. No intrusive work shall commence prior to completion of pre-construction photo documentation activities.

The Contractor shall also document the existing site conditions such as the adjacent structural conditions, public roads, curbs, sidewalk, plants, and temporary facility areas. The actual number of exposures shall be determined based on the existing condition but shall not be less than 50.

The location of the pre-construction photographs shall be designated by the Contracting Officer.

1.4 PROGRESS PHOTOGRAPHS

After construction operations have been started at the site, the Contractor shall photographically record all construction activities. A minimum of 25 progress photographs shall be taken every two (2) weeks throughout the duration of the contract. The location of the progress photographs shall be designated by the Contracting Officer. The progress photographs shall be 8"x 10" and shall include a minimum coverage of the following for each cluster:

- a. Demolition (including basement walls, slab and footings);
- b. Contaminated soil excavation;
- c. Contaminated material handling, storage and sampling;
- d. Unanticipated events such as discovery of additional contaminated material.
- e. Odor control practices;
- f. Backfill, compaction and grading;
- g. Site restoration;
- h. Soil erosion and sediment control practices;
- i. Dewatering activities;
- j. Wastewater treatment system, including at least one photograph of each major component of the system;
- k. Discharge of treated water sampling;
- l. Site or task-specific employee respiratory and personnel protection;
- m. Unanticipated events such as spillage of container contents or related accidents;
- n. Truck loading and decontamination;
- o. Employee decontamination;
- p. Decommissioning of underground and above ground storage tanks if any;
- q. Failure of side slopes, if any;
- r. Dust control practices;
- s. Temporary facilities construction and status;
- t. Site or task-specific employee respiratory and personnel protection;
- u. An additional 10 photos per cluster from each major point of the compass prior to backfilling any excavation; and
- v. An additional 4 photos of open excavations following removal of subsurface structures and/or major buried objects as determined by the Contracting Officer.

1.5 POST-CONSTRUCTION PHOTOGRAPHS

After completion of work the Contractor shall take a minimum of 50 exposures of the site. The Contractor shall also document the conditions of the adjacent properties, public roads, curbs, plants and sidewalk. The locations shall be designated by the Contracting Officer. All Contracting Officer designated photographs taken during the pre-construction phase of the project shall be retaken as closely as possible to their original positions during the post-construction phase.

1.6 DELIVERY OF PRINTS

The Contractor shall submit to the Contracting Officer four (4) 8"x10"

prints of each photograph taken prior to the commencement of work (pre-construction) and after the completion of work (post-construction), within 14 calendar days after taking the photographs, or as approved by the Contracting Officer.

The Contractor shall submit to the Contracting Officer three (3) 8"x10" prints of construction (progress photographs) along with the prints within 14 calendar days after taking the photographs or as approved by the Contracting Officer.

All video and photographs are U.S. Government property and shall not be released by the Contractor to the public or news media. The photographs should be enclosed back-to-back in double-face plastic sleeves punched to fit standard three-ring binders, provided by the Contractor.

In addition to the color prints, the Contractor shall provide the Contracting Officer with digital copies of all photos on CD. Descriptively name all photo files on the CD.

1.7 PRINTS

All prints shall be color prints; of standard commercial quality; sized as previously described; and on single weight glossy paper. Each 8"x10" print shall include an information box in the lower right hand corner or taped to the back of photos. The box shall be typewritten and arranged as follows:

REMEDIAL ACTION
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE - OU2

IFB Project No. _____ C.O.E. Contract No. _____
Designer: _____
Contractor: _____
Phone: _____ Address: _____
Property Designation _____
Photograph No. _____
Date: _____
Time: _____
Description: _____

1.8 VIEWS REQUIRED

Prints shall illustrate condition and location of work and the state of progress.

Consult with the Contracting Officer at each period of photography for recommendations concerning views required.

The control number and location of views to be taken before, during, and after completion shall be as directed by the Contracting Officer.

PART 2 PRODUCTS

2.1 DIGITAL CAMERA

The digital camera shall meet the following minimum requirements:

- a. 4.0 megapixel (2,240 x 1,680 Resolution) or better
- b. 48 Bit Color Depth
- c. 512 MB flash card or better
- d. 3x Optical Zoom
- e. 1.8" TFT LCD Monitor
- f. 3 Modes Built in Flash\
- g. Wide aperture setting (f-stop)

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01381

VIDEOTAPING

PART 1 GENERAL

1.1 SCOPE OF WORK

The Contractor shall furnish all labor, materials and equipment to furnish color audio/video taping of the project site to record the site features prior to the commencement of work and after the work has been completed, and any important site features during construction. All videotapes are government property and shall not be released by the Contractor to the public or news media.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-11 Closeout Submittals

Pre-Construction, Progress and Post-Construction Video; (FIO)

1.2.1 Pre-Construction, Progress and Post-Construction Video

The Contractor shall furnish to the Contracting Officer an original and two copies of each video. Each video shall be a continuous, color recording of the site including adjoining properties, public roads, curbs, sidewalks, plants, etc. using either VHS or DVD technology.

1.3 VIDEO QUALITY

The Contracting Officer reserves the right to reject the videotape because of poor quality, unintelligible audio, or uncontrolled pan or zoom. Any taping rejected by the Contracting Officer shall be re-taped at no cost to the Government. Under no circumstances shall construction begin until the Contracting Officer has received and accepted the videotape.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 VIDEO SURVEY

Furnish a continuous, color videotape recording along the Construction Limits.

Coverage shall include, but not be limited to, all existing roadways, sidewalks, curbs, driveways, buildings and structures, above ground utilities, landscaping, trees, signage, fencing and other physical features located within the Construction Limits and any other adjacent properties.

The coverage may be expanded if directed by the Contracting Officer.

All taping shall be done during daylight hours. No taping shall be performed if weather is not acceptable to the Contracting Officer.

In order to produce the proper detail and perspective, artificial lighting shall be required for all interior taping and where it is necessary to fill in the shadow area caused by trees, utility poles, road signs, and other such objects.

The post construction Video survey indicate that coverage shall include, but not be limited to all existing roadways, haul roads, sidewalks, curbs, building and structures, above ground utilities, landscaping, trees, signage, fencing and other physical features at the project site.

3.2 AUDIO AND VIDEO

Audio/video recordings shall be provided using the most recent video technology available.

Each recording shall begin with the Contracting Officer's name, Contract name and number, Contractor's name, date and location information such as street name, direction of travel, viewing side, etc.

Information appearing on the recording must be continuous and run simultaneously by computer-generated transparent digital information. No editing or overlaying of information at a later date will be acceptable.

3.2.1 DIGITAL INFORMATION

Digital information should be as follows:

Upper left corner

- a. Name of Contractor
- b. Day, date and time
- c. Name of project

Lower left corner

- a. Route of travel
- b. Viewing side
- c. Direction of travel

Time must be accurate to within 1/10 of a second and be continuously generated.

Written documentation must coincide with the information on the tape to facilitate easy retrieval of information.

The video system shall have the capability of transferring individual frames of video electronically into hard copy prints or photographic negatives.

Audio shall be recorded in a clear, professional and concise manner at the same time as the video recording and shall include the same information as on the viewing screen. Special commentary shall be given for unusual conditions of streets, foundations, buildings, sidewalks and curbing, trees and shrubbery, etc.

All tapes/DVDs and containers shall bear labels with the following

information:

- a. Tape Number
- b. Project Name and Number
- c. Project Site
- d. Date of Taping
- e. Contracting Officer's Name
- f. Location and Standing Limit of Tape

-- End of Section --

SECTION 01420

SOURCES FOR REFERENCE PUBLICATIONS

PART 1 GENERAL

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization, (e.g. ASTM B 564 Nickel Alloy Forgings). However, when the standards producing organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

1.2 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided. Documents listed in the specifications with numbers which were not assigned by the standards producing organization should be ordered from the source by title rather than by number.

AIR-CONDITIONING AND REFRIGERATION INSTITUTE (ARI)
4100 North Fairfax Drive, Suite 200
Arlington, VA 22203
Ph: 703-524-8800
Fax: 703-528-3816
E-mail: ari@ari.org
Internet: <http://www.ari.org>

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
444 North Capital Street, NW, Suite 249
Washington, DC 20001
Ph: 202-624-5800
Fax: 202-624-5806
E-Mail: info@aaashto.org
Internet: <http://www.aashto.org>

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)
1330 Kemper Meadow Drive
Cincinnati, OH 45240
Ph: 513-742-2020
Fax: 513-742-3355
E-mail: mail@acgih.org
Internet: <http://www.acgih.org>

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
1819 L Street, NW, 6th Floor
Washington, DC 20036
Ph: 202-293-8020
Fax: 202-293-9287

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Internet: <http://www.cganet.com>

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Internet: <http://www.nfpa.org>

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Fax: 609-292-7695
Internet:

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P.O. Box 600
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Internet:

NEW JERSEY STATE SOIL CONSERVATION COMMITTEE (SCS)

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-- End of Section --

SECTION 01450A

CHEMICAL DATA QUALITY CONTROL

PART 1 GENERAL

1.1 GENERAL

The Contractor is responsible for chemical data quality control and establishing an effective chemical data QC system that meets requirements for chemical and measurement DQOs applicable to the project. The chemical data QC system shall consist of a chemical Quality Management staff responsible for sampling and measurement plans, analytical procedures, data reporting requirements, and the organization necessary to produce the required chemical data. The system shall cover chemical measurements for both Contractor- and subcontractor-produced chemical data.

The Contractor is responsible for chemical sample acquisition, sample analysis, and instrument measurements of chemical parameters.

1.2 SCOPE OF WORK

This section covers requirements for chemical data quality control, sampling, testing, and measurements applicable to the remedial action of contaminated sites. This section is to be used for the preparation of a Sampling and Analysis Plan (SAP), including quality assurance (QA) and quality control (QC) procedures for the sampling, measurement, and testing addressed by the plans.

The sampling, measurement, and testing to be conducted for this project will include:

- a. Characterization of debris and surface and subsurface soil to determine compliance with remedial action goals;
- b. Air monitoring;
- c. Water sampling;
- d. Characterization of backfill materials and topsoil;
- e. Characterization of site materials to comply with handling, transportation, and disposal requirements; and
- f. Health and safety sampling and measurements.

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. Publications are referred to by basic designation only.

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 200-1-1

(1994) Validation of Analytical Chemistry
Laboratories

Cornell-Dubilier Electronics Superfund Site - OU2

EM 200-1-2	(1998) Technical Project Planning Guidance for HTRW Data Quality Design
EM 200-1-3	(2001) Requirements for the Preparation of Sampling and Analysis Plans
EM 200-1-6	(1997) Chemical Quality Assurance for HTRW Projects
ER 1110-1-263	(1998) Chemical Data Quality Management for Hazardous, Toxic, Radioactive Waste Remedial Activities

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA SW-846	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition as amended through Final Update III
EPA QA/R-5	EPA Requirements for Quality Assurance Project Plans
EPA QA/G-5	Guidance for Quality Assurance Project Plans

NEW JERSEY ADMINISTRATIVE CODE (NJAC)

NJAC 7:9	Water Pollution Control, including 7:9B, Surface Water Quality Standards
NJAC 7:14	Water Pollution Control Act, including 7:14A, Pollutant Discharge Elimination System
NJAC 7:18	Regulations Governing Certification of Laboratories and Environmental Measures
NJAC 7:26D	(1992) Cleanup Standards for Contaminated Sites (proposed rule)
NJAC 7:26E	Technical Requirements for Site Remediation
NJAC 7:28-12	Soil Remediation Standards for Radioactive Materials

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP)

NJDEP FSPM	NJDEP Field Sampling Procedures Manual (1992), including draft revised Chapter 12, Radiological Assessment (2000)
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1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Sampling and Analysis Plan(SAP); G.

The Contractor shall develop a Sampling and Analysis Plan and submit it to the Contracting Officer for approval prior to the Pre-Work Conference. The SAP shall address site-specific sampling and analysis and shall be submitted to the Contracting Officer for approval 14 days prior to the Pre-Work Conference and no later than 30 days after the Notice to Proceed. The SAP shall be prepared in accordance with CDQC requirements and EM 200-1-3 and include the Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP). The QAPP shall be in conformance with the USEPA's Uniform Federal Policy for Implementing Environmental Quality Systems (UFP).

SD-06 Reports

Chemical Data Packages; G.

The chemical data packages shall be submitted to the Contracting Officer for approval within 2 weeks of sample collection for on-site laboratory analysis and 6 weeks of sample collection for off-site laboratory analysis.

Daily Chemical Quality Control Reports(DCQCRs).

Submit DCQCRs coincident with or included in the Daily CQC reports required in Section 01312A QUALITY CONTROL SYSTEM.

Quality Control Summary Report (QCSRs); G.

For each remedial area, submit QCSRs to the Contracting Officer for approval within 2 weeks following data validation and review.

1.5 DATA QUALITY OBJECTIVES (DQOS)

1.5.1 General

Perform sampling, analysis, and other data collection so that resulting data meet and support remedial action goals, project goals, and data use requirements. The Contractor shall be responsible for developing appropriate DQOs to ensure that this requirement is met.

1.5.2 Definition

DQOs are defined by USACE as qualitative and quantitative statements that clarify technical and quality objectives, define the appropriate type of data, and specify tolerable levels of potential decision errors that shall be used as the basis for establishing the quality and quantity of data needed for support decisions.

1.5.3 Development

DQOs shall clearly define the final uses of data. Contractor-developed DQOs shall be developed in accordance with EM 200-1-2, EM 200-1-3, and EM 200-1-6. Project-specific DQOs shall be included in the QAPP and consist of:

Data Use Background - Project-specific data needs, short-term decisions that will be made during the project planning phase, and long-term decisions that will be made prior to project closeout. A brief summary of types of samples and level of required analyses (screening versus definitive) should be included.

Measurement Quality Objectives for Data - Applicable QA elements to be applied to the project and measurement quality objectives (MQOs) established for key data quality indicator terms, including precision, accuracy, representativeness, completeness, and comparability, in accordance with EM 200-1-6 and EM 200-1-3.

DQOs shall also be specified at a minimum for method sensitivity (detection, quantification, and reporting limits) and Type I and Type II errors. For this project, the Type I error has been established as 0.05; the Type II error will be either 0.05 or 0.10.

1.6 RESPONSIBILITIES AND MINIMUM PERSONNEL QUALIFICATIONS

1.6.1 Contractor Chemical Quality Control Coordinator

The Chemical Quality Control Coordinator shall ensure that all site-specific chemical data-related objectives are attained, including QC responsibility for DQOs, sampling and analysis, data documentation and validation, and discussions of data in final project reports.

The Chemical Quality Control Coordinator need not be present on site during routine sampling, but shall be available for consultation with government and Contractor personnel.

At a minimum, the Chemical Quality Control Coordinator shall have the following qualifications:

A degree in chemistry or a related field with a minimum of 16 semester hours in chemistry and 2 years' experience in chemical contamination cleanup work; and

1.6.2 Project Chemist

The Project Chemist shall ensure that all chemistry-related goals of the site-specific program are attained. The Project Chemist shall be on site periodically during sampling events and shall be available for consultation with government personnel.

At a minimum, the Project Chemist shall have the following qualifications:

A degree in chemistry or radiochemistry and 3 years' experience related to analytical work for contamination cleanup projects; and

If the Project Chemist is the On-Site Laboratory Manager, then the requirements of Section 1.6.3 also will apply.

1.6.3 On-Site Laboratory Manager

The On-Site Laboratory Manager shall ensure that the on-site laboratory is operated such that all chemistry-related goals of the site-specific program are attained.

At a minimum, the On-Site Laboratory Manager shall have a degree in chemistry or radiochemistry and 3 years' experience in the performance of the chemical methods to be performed for this work.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 DATA QUALITY MANAGEMENT AND CONTROL

Chemical data quality management and control shall be accomplished in accordance with the requirements in ER 1110-1-263, EM 200-1-2, EM 200-1-3, and EM 200-1-6.

Chemical data quality control, as part of overall contractor quality control, shall be accomplished with the three-phase process described in the above documents. All chemical data will be checked in accordance with this process.

3.2 SAMPLING AND ANALYSIS PLAN (SAP)

3.2.1 Purpose and Content

The Contractor shall develop a Sampling and Analysis Plan as a two-part document that contains an FSP and QAPP in accordance with EM 200-1-3, EPA QA/G-5, and EPA QA/R-5. The Sampling and Analysis Plan (SAP) shall describe site-specific project requirements for all field and laboratory activities related to the acquisition of chemical samples, measurements, and data.

Incorporate requirements from the following as applicable during SAP preparation:

Data quality management requirements from ER 1110-1-263 and EM 200-1-6;

NJDEP requirements for quality assurance for sampling and laboratory analysis in NJAC 7:26E Subchapter 2; and

Relevant procedures in the NJDEP FSPM.

The SAP shall describe all parameter measurements for all matrices for all phases of the remediation contract. As a single interrelated document, provide the SAP to field and laboratory personnel.

When preparing the SAP, the Contractor should propose original/innovative approaches to chemical parameter measurements for cost reduction and remediation efficiency, such as abbreviated sampling, contingency sampling and/or contingency analysis, indicator or tracer analysis, on-site analytical services, and equivalency or screening methods. Clearly identify Contractor-obtained laboratories in the SAP.

The SAP shall have its own title page, distribution list, and table of contents for the FSP and QAPP that comprise it, in accordance with EM 200-1-3.

3.2.2 Field Sampling Plan (FSP)

The FSP shall contain all necessary technical detail and direction for field personnel to understand sampling and field data-gathering methods and requirements. The FSP shall provide a comprehensive description and full detail of all on-site activities required to attain project data quality objectives (DQOs), which will be established by the Contractor and defined in the QAPP.

The FSP shall contain, at a minimum, the following elements.

3.2.2.1 Title Page and Table of Contents

The FSP should have an abbreviated title page and a full table of contents.

3.2.2.2 Project Background

The project background shall include sufficient information to permit a technical person unfamiliar with the project to evaluate the sampling, measurement, and analytical approach presented. This section of the FSP should include information such as:

- Site history and contaminants;

- A summary of existing site data, including significant chemical data from previous site projects such as the NJDEP investigation and the RI; and

- Site-specific definition of problems, including an assessment of the quality of the historical data (such as sample and matrix problems that resulted in analytical difficulties), problems previously encountered, and the site problem to be resolved.

3.2.2.3 Project Organization and Responsibilities

The FSP shall identify key personnel and organizations for field activities and pertinent planning activities, including an organizational chart showing lines of authority and points of contact. The chart should include all subcontractors and also should identify QC managers and personnel and their relationship to other project personnel.

This section of the FSP also should describe responsibilities of project personnel as well as special training requirements and certifications necessary to perform project work.

3.2.2.4 Project Scope and Objectives

This section of the FSP shall identify planned project activities, incorporating QA elements to be implemented to support those activities, any relevant regulatory standards, and the project schedule. The relationship between the project work and project DQOs shall be described.

3.2.2.5 Non Measurement Data Acquisitions

This section of the FSP shall describe data needed from non measurement sources, if applicable. This may include information from databases, literature, guidance documents, and other specific organizations.

3.2.2.6 Field Activities

The FSP shall describe field activities in detail and use diagrams, charts, and tables as applicable to specify the rationale and design and field procedures for each activity. This section should specify at a minimum:

- All samples and field measurements and their locations, frequency, scheduling, and analytical parameters;

- Field QC samples and measurements;

- Sample containers, preservation, and holding times;

- Sample and measurement procedures, including decontamination procedures;

- Calibration and maintenance procedures for field equipment and instruments;

- Unique sample identification numbers for each sampling/measurement point; and

- Applicable DQOs.

As applicable, include Contractor SOPs for field activities in the FSP.

3.2.2.7 Field Operations and Documentation

This section of the FSP shall identify records used to document field operations, including those requiring periodic submittal to a USACE representative. This section of the FSP should address procedures for developing and maintaining project records including but not limited to:

- Daily Contractor QC reports and chemical QC reports;

- Logbooks and field sheets;

- Field analytical and on-site laboratory records;

- Sample labeling, documentation, and custody;

- Manifests, waste profiles, and bills of lading; and

- Corrective action reports.

3.2.2.8 Sample Packaging and Shipping Requirements

This section of the FSP shall include procedures for packaging and shipping samples in accordance with the U.S. Department of Transportation (DOT). The FSP shall include information for shipping companies that will be used and laboratories to which samples will be sent, including addresses, points of contact, telephone numbers, and business hours.

3.2.2.9 Investigation-Derived Wastes (IDW)

The FSP shall discuss procedures for collecting, labeling, storing, and disposing of IDW.

3.2.2.10 Field Assessment/Three-Phase Inspection Procedures

The FSP will address contractor quality control and the three-phase control process addressed by EM 200-1-3. This section should reference the Contractor Quality Control Plan, including required reports and activities.

3.2.2.11 Corrective Actions

The FSP shall describe corrective action procedures to be taken in the event of discrepancies in the field or analytical work.

3.2.3 Quality Assurance Project Plan (QAPP)

The QAPP shall describe chemical DQOs, analytical methods, other measurement methods, QA/QC protocols necessary to achieve the DQOs, and data assessment procedures for all samples and measurements collected under the project.

The QAPP shall contain, at a minimum, the following elements.

3.2.3.1 Title Page and Table of Contents

The QAPP should have an abbreviated title page and full table of contents.

3.2.3.2 Analytical Organization and Responsibilities

The QAPP shall identify key laboratory, analytical, and field data review personnel and organizations for each analytical or measurement activity, including an organizational chart showing lines of authority and points of contact. The chart should include all subcontractors and should identify QA managers and personnel and their relationship to other project personnel.

This section of the QAPP also should describe responsibilities of analytical personnel as well as special training requirements and certifications necessary to perform analytical work. Minimum analytical personnel requirements shall be in accordance with ER 1110-1-263.

3.2.3.3 Data Assessment Organization and Responsibilities

This section of the QAPP shall identify personnel or organizations that will be performing data assessment activities, in accordance with EM 200-1-6.

3.2.3.4 Data Quality Objectives (DQOs)

Project-specific DQOs shall be included in the QAPP and shall be as specified in paragraph: Data Quality Objectives (DQOS).

3.2.3.5 Sample Receipt, Handling, Custody, and Holding Time Requirements

The QAPP shall identify requirements for sample receipt condition verification, sample storage and handling, intra- and interlaboratory custody, and parameter holding times.

3.2.3.6 Analytical Methods

The QAPP shall describe analytical methods to be used for each sample and matrix by on-site and off-site laboratories, including:

A listing or tabulation of analytical methods per sample and matrix,

including applicable detection limits;

Preventive maintenance procedures for analytical instruments and equipment to minimize equipment downtime;

Calibration procedures and frequencies for analytical instruments and equipment;

Laboratory QC procedures, including QC samples and internal QC checks;

Performance and system audits; and

Corrective action procedures, including actions that will be implemented if MQOs or other DQOs are not met.

3.2.3.7 Data Reduction and Calculation of Data Quality Indicators

The QAPP shall discuss how data are reduced by laboratories and define how precision, bias, sensitivity parameters (detection, quantification, and reporting limits), and completeness goals are to be calculated.

3.2.3.8 Laboratory Operations Documentation

The QAPP shall discuss data reporting procedures, such as data package and electronic data deliverable format and content, reporting schedule, data archival, and records retention requirements.

3.2.3.9 Data Assessment Procedures

The QAPP shall discuss the data review, verification, and validation processes required to assure validity of data. This should include the DQO reconciliation process and a project completeness assessment in accordance with EM 200-1-6.

3.2.3.10 Appendices

The appendices to the QAPP shall contain, as applicable:

Standard forms;

Abbreviations and acronyms;

References;

Standard and nonstandard measurement methods and SOPs; and

Equivalency data.

3.3 SAMPLING AND MEASUREMENTS

3.3.1 General

Provide 24-hour notice (unless longer is specified) to the Contracting Officer prior to sampling. Sampling and analytical methods and procedures for sampling shall be in accordance with the approved SAP.

3.3.2 Backfill Samples

Off-site fill must meet NJDEP requirements in NJAC 7:26E-6.4 with regard to

condition and quality, and be analyzed for site contaminants. Sampling frequency will be 1 sample per 5,000 cubic yards. Results of Chemical Sampling shall be to NJAC 7:26D Soil Cleanup Criteria - Residential Direct Contact for acceptance.

3.3.3 Water Sampling

Collect and analyze water removed from excavations and decontamination activities in accordance with federal, state, and local requirements prior to on-site discharge of treated water or off-site disposal. State regulations include NJAC 7:9, NJAC 7:14 f, NJAC 7:26D, and NJAC 7:26E. There will be no on-site surface discharges unless a NJPDES permit or permit equivalent is in place (see Section 02320).

3.3.4 Radiological Testing

Radium-226 results shall be less than 5 picoCuries/gram and Gamma Radiation Exposure. The rate shall be less than 30 micro Roentgen per hour and/or free of radiological contamination and/or above site backgrounds in accordance with NJAC 7:28-12. Samples shall be analyzed for Radium-226 with EPA SW-846 method HASL 300 or EPA approved method and for Gamma Radiation Exposure Rate with EPA SW-846 Standard Practice Method.

3.4 CHEMICAL DATA PACKAGES AND OTHER MEASUREMENT DATA

Produce and provide analytical data packages and other measurement data as an attachment to the Quality Control Summary Reports (QCSRs) and in accordance with EM 200-1-6. Data compilations shall be submitted to the Contracting Officer and to NJDEP, Bureau of Management, and shall contain information to demonstrate that the project's DQOs have been fulfilled.

3.5 SELECTION AND USE OF ANALYTICAL TESTING LABORATORIES

3.5.1 General

Propose on-site and off-site analytical laboratories to be used for sample analyses. Analysis of some samples may be through a USEPA Division of Environmental Science and Assessment (DESA) or USEPA Certified Laboratory Program (CLP) lab. Validate analytical laboratories as described below.

3.5.2 Laboratory Validation and Approval

Validate analytical laboratories in accordance with ER 1110-1-263 and EM 200-1-1. NJDEP approval pursuant to NJAC 7:18 also is required. All project laboratories performing definitive chemical analyses must be accredited by NELAP. The Contractor is responsible for the data quality of all chemical data. In addition, laboratories that analyze samples for disposal services must meet all of the requirements of the disposal facility, including disposal state certification or approval, as applicable.

Laboratory validation will include:

- Submittal of Laboratory Quality Management Manuals by candidate laboratories, for review by the Contractor and USACE;

- Successful analysis of performance audit samples submitted by USACE or a vendor approved by USACE and NJDEP;

- A successful laboratory inspection by USACE personnel, including

acceptable deficiency resolution and validation award by the USACE HTRW Mandatory Center of Expertise Laboratory Validation Committee; and

3.5.3 Laboratory Performance

Provide and/or require continued acceptable analytical performance and establish a procedure to address data deficiencies noted by review and/or quality assurance sample results. Provide and implement a mechanism for providing all analytical laboratories with the SAP, monitoring all laboratories' performance, and performing corrective action procedures. The Contractor is responsible for acquiring analytical services with additional NELAP-accredited (or USACE-certified) or validated laboratories in the event that a project laboratory loses its validation status during the project.

3.6 DAILY CHEMICAL QUALITY CONTROL REPORTS (DCQCRS)

3.6.1 General

DCQCRs shall be provided coincident with or included in the CQC reports required by Section 01110 SUMMARY OF WORK. The DCQCRs shall be generated by on-site personnel responsible for chemical measurements and sample acquisition and provide factual evidence that required chemical data QC activities have been performed.

3.6.2 Contents of DCQCRs

The DCQCRs shall contain at a minimum the following elements:

General identifying information as required of the Contractor for CQC reports;

Chemical data acquisition performed, including QA/QC samples and measurements, in the field and in the laboratory;

Chemical data QC activities implemented as part of the three-phase control system;

Sample and measurement problems that may affect project DQO requirements;

Corrective actions and/or deviations from the approved SAP, including approvals;

A summary of the feedback procedure for any corrective actions taken; and

Confirmation that all deviations or actions jeopardizing project DQOs have been forwarded to project management.

3.7 QUALITY CONTROL SUMMARY REPORTS (QCSRS)

3.7.1 General

QCSRs shall be provided that include a summary of all chemical sampling and measurement activities. The summary must include an evaluation of the achievement of the chemical DQOs.

3.7.2 Contents of QCSRs

The QCSRs shall contain at a minimum the following elements:

Summary of project scope and description;

Summary of DCQCRs;

Summary of deviations from the design chemical sample and measurement specifications;

Summary of chemical samples and measurements performed as contingent measurements;

Summary discussion of resulting data including achieving minimum data reporting requirements;

Summary of achievement of project DQOs;

Presentation and evaluation of data, including an overall assessment of data quality and usability;

Internal QC data generated during the project, including summaries of QC information from blanks, matrix spikes, surrogates, duplicates, laboratory control samples, batch identifiers, and chemical yields;

A list of affected sample results, including appropriate data qualifier flag, where such results are negatively affected by adverse QC criteria;

A summary of field and laboratory oversight activities;

Conclusions and recommendations; and

Attachments, including final data packages required by Section 01450A CHEMICAL DATA QUALITY CONTROL, and, if applicable, government-provided Chemical Quality Assurance Reports.

3.8 DOCUMENTATION

Documentation records are required to provide factual evidence that required chemical data have been produced and that chemical data quality has been achieved.

3.9 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, whether delivered to the Contractor on site or through the Contractor's management level, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been made. No part of the time lost or additional expenses incurred due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

-- End of Section --

SECTION 01451A

CONTRACTOR QUALITY CONTROL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D 3740	(2001) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E 329	(2002) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Contractor Quality Control (CQC) Plan;G

SD-06 Reports

Daily CQC Reports

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction design and construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the

contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer, and shall be responsible for all construction and construction related activities at the site.

3.2 CONTRACTOR QUALITY CONTROL PLAN

The Contractor shall furnish for review the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The plan shall be submitted for approval 14 days prior to the Pre-Work Conference and no later than 30 days after the Notice to Proceed. The Government will consider an interim plan for the first 30 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.1 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subContractors, fabricators, suppliers, and purchasing agents:

- a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.
- b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.
- d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01330 SUBMITTAL PROCEDURES.
- e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities approved

by the Contracting Officer shall be used.)

- f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.
- g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.
- h. Reporting procedures, including proposed reporting formats.
- i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable feature under a particular section. This list will be agreed upon during the coordination meeting.

3.2.2 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.3 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the Pre-work Conference, before start of construction, Post-award Conference, before start of design or construction, and prior to acceptance by the Contracting Officer of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 7 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, design activities, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager, and sufficient number of additional qualified personnel to ensure safety and contract compliance. The Safety and Health Manager shall receive direction and authority from the CQC System Manager and shall serve as a member of the CQC staff. Personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly will also be included as part of the CQC organization. The Contractor's CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Contracting Officer. The Contractor shall provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Complete records of all letters, material submittals, shop drawing submittals, schedules and all other project documentation shall be furnished to the CQC organization by the Contractor within 24 hours. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

In addition to using the RMS, accidents shall be reported immediately verbally to the Contracting Officer with a written report of the incident with 24 hours of occurrence of the same.

3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a graduate of construction management, with a minimum of 10 years construction experience on construction similar to this contract. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned no other duties. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager.

3.4.3 Additional Requirement

In addition to the above experience and/or education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management For Contractors".

3.4.4 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5 SUBMITTALS AND DELIVERABLES

Submittals, if needed, shall be made as specified in Section 01330

SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of the construction work as follows:

3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

- a. A review of each paragraph of applicable specifications, reference codes, and standards. A copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field shall be made available by the Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by Government personnel until final acceptance of the work.
- b. A review of the contract drawings.
- c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.
- d. Review of provisions that have been made to provide required control inspection and testing.
- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- g. A review of the appropriate activity hazard analysis to assure safety requirements are met.
- h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.
- i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.
- j. Discussion of the initial control phase.
- k. The Government shall be notified at least 48 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the

foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

- a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.
- b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.
- c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
- d. Resolve all differences.
- e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
- f. The Government shall be notified at least 48 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.
- g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Contracting Officer duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.
- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- e. Results of all tests taken, both passing and failing tests, shall be recorded on the Daily CQC reports for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2 Testing Laboratories

3.7.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.7.3 Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests, and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

Near the end of the work, or any increment of the work the CQC Manager shall conduct an inspection of the work. A punch list of items which do not conform to the approved drawings and specifications shall be prepared and included in the CQC documentation, as required by paragraph DOCUMENTATION. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2 Pre-Final Inspection

The Government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Contracting Officer, so that a Final inspection can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at the final acceptance inspection. Additional Government personnel may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection.

3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that all required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed each day, giving location, description, and by whom.

- d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List of deficiencies noted, along with corrective action.
- e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.
- f. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.
- g. Offsite surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. Instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The signed original and one copy of these records in report form shall be furnished to the Contracting Officer daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.10 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply within 24 hours, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

-- End of Section --

SECTION 01500A

TEMPORARY CONSTRUCTION FACILITIES

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

1.1.1 Temporary Site Facilities Layout Plan

The Contractor shall prepare a Temporary Site Facilities Layout Plan and a Trailer's Floor Plan and submit it to the Contracting Officer for approval at least 14 calendar days prior to the Pre-Work Conference and no later than 30 days after the Notice to Proceed. The Temporary Site Facilities Layout Plan shall indicate the proposed location and dimensions of any area to be fenced and used by the Contractor, the number of trailers to be used, avenues of ingress/egress to the fenced area and details of the fence installation. Any areas which may have to be graveled to prevent the tracking of mud shall also be identified. The Contractor shall also indicate if the use of a supplemental or other staging area is desired.

The facilities shall consist of the following:

- a. USACE Field Office (60 feet x 12 feet)
- b. EPA Field Office (60 feet x 12 feet)
- c. Safety, Security, Communications and Contractor's Offices
- d. Emergency Medical Facility
- e. Personal Hygiene and Decontamination Facilities
- f. Equipment Storage and Lunch Areas
- g. On-Site Contaminated Equipment Areas
- h. Parking Area
- i. Outdoor Lighting within the designated support zone to ensure adequate visibility after dark

1.1.2 Identification of Employees

The Contractor shall be responsible for furnishing to each employee, and for requiring each employee engaged on the work to display, identification as approved and directed by the Contracting Officer. Prescribed identification shall immediately be delivered to the Contracting Officer for cancellation upon release of any employee. When required, the Contractor shall obtain and provide fingerprints of persons employed on the project. Contractor and subcontractor personnel shall wear identifying markings on hard hats clearly identifying the company for whom the employee works.

1.1.3 Employee Parking

Contractor employees shall park privately owned vehicles in an area designated by the Contracting Officer. This area will be within reasonable walking distance of the construction site. Contractor employee parking shall not interfere with existing and established parking requirements of the military installation.

1.1.4 Structures

All structures other than storage sheds installed under this section shall be provided with, as a minimum, the following services:

- a. Lighting: Electric light, non-glare type luminaries to provide a minimum illumination level of 50 foot-candles at desk height level.
- b. Heating and Cooling: Adequate equipment to maintain an ambient air temperature of 70 degrees Fahrenheit (F) +/- 3 degrees.
- c. Potable bottled water.
- d. Fire Extinguisher: Non-toxic, dry chemical, fire extinguisher meeting Underwriters Laboratories, Inc., approval for Class A, Class B, and Class C fires with a minimum rating of 2A:10B.
- e. Janitorial services on a daily basis including, but not limited to, sweeping, emptying waste baskets, servicing of toilets, weekly mopping of floors, sanitizing toilet seats, providing towels and soap to the lavatories and monthly washing of floors and windows (inside and out). The time of the cleaning shall be coordinated with the Contracting Officer.
- f. Sufficient supply of electrical outlets.

All structures and facilities shall be designed for year-round operation.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Temporary Site Facilities Layout Plan; G, A/E

Trailer's Floor Plan; G, A/E

Electrical Supply and Lighting Shop Drawings; G, A/E

Water Supply, Contaminated Washwater Handling and Sanitary Facilities; G, A/E

1.3 AVAILABILITY AND USE OF UTILITY SERVICES

1.3.1 Payment for Utility Services

The Contractor shall be responsible for providing all utilities to the site necessary to do the work. The Contractor shall be responsible for the operation of all systems, including maintenance, to assure that necessary services are provided. The Contractor shall be responsible for all telephone charges. All electric power shall be purchased directly by the Contractor. The Contractor is required to coordinate, maintain, and pay for all required utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor. The Contractor shall submit for review Electrical Supply and Lighting Shop Drawings and Water Supply, Contaminated Washwater Handling and Sanitary Facilities source points, layout locations, fixtures, materials and methods of disposal.

Existing utility lines are available for the Contractor to tie into. Any extension, connection or alteration needed for temporary power will be performed by the Contractor at the Contractor's expense and coordinated with Borough of South Plainfield and the property owners. All modifications to existing utilities for temporary construction facilities and existing temporary utilities will be removed at the completion of the project by the Contractor.

1.3.2 Electrical

The Contractor shall make the necessary arrangements with the appropriate power authority for service and shall be responsible for installation, maintenance and shutoff costs for onsite power connections. All power service lines shall be removed prior to project closeout.

1.3.3 Water and Sanitation

The Contractor is responsible for providing or arranging for a potable water supply for any water to be used on the site during the duration of the Contract. The Contractor shall provide and maintain within the construction area minimum field-type sanitary facilities approved by the Contracting Officer. Government toilet facilities will not be available to Contractor's personnel.

1.3.4 Telephone

The Contractor shall make arrangements and pay all costs for telephone facilities desired. The Contractor shall make the necessary arrangements with the local Telephone Company to install equipment and services to meet site requirements and shall be responsible for all related installation service and shutoff costs.

1.4 BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

1.4.1 Bulletin Board

Immediately upon beginning of work, the Contractor shall provide a weatherproof glass-covered bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, and

other information approved by the Contracting Officer. The bulletin board shall be located at the project site in a conspicuous place easily accessible to all employees, as approved by the Contracting Officer. Legible copies of the aforementioned data shall be displayed until work is completed. Upon completion of work the bulletin board shall be removed by and remain the property of the Contractor.

1.5 PROTECTION AND MAINTENANCE OF TRAFFIC

During construction the Contractor shall provide access and temporary relocated roads as necessary to maintain traffic. The Contractor shall maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the Contracting Officer. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as required by the State and local authorities having jurisdiction. The traveling public shall be protected from damage to person and property. The Contractor's traffic on roads selected for hauling material to and from the site shall interfere as little as possible with public traffic. The Contractor shall investigate the adequacy of existing roads and the allowable load limit on these roads. The Contractor shall be responsible for the repair of any damage to roads caused by construction operations. The Contractor shall allow site tenants access to their buildings at all times; any interruptions to such access shall be coordinated through the Contracting Officer.

1.5.1 Haul Roads

The Contractor shall, at its own expense and only if necessary, construct access and haul roads necessary for proper prosecution of the work under this contract. Haul roads shall be constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided. The Contractor shall provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control, although optional, shall be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads shall be subject to approval by the Contracting Officer. Lighting shall be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations. Upon completion of the work, haul roads designated by the Contracting Officer shall be removed.

1.5.2 Barricades

The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

1.6 CONTRACTOR'S TEMPORARY FACILITIES

1.6.1 Administrative Field Offices

The Contractor shall provide and maintain administrative field office

facilities within the construction area at the designated site. Government office and warehouse facilities will not be available to the Contractor's personnel.

1.6.2 Storage Area

The Contractor shall construct a temporary 6 foot high chain link fence around trailers and materials in addition to the temporary fence constructed around each cluster being demolished. Fence posts may be driven, in lieu of concrete bases, where soil conditions permit. Trailers, materials, or equipment shall not be placed or stored outside the fenced area unless such trailers, materials, or equipment are assigned a separate and distinct storage area by the Contracting Officer away from the vicinity of the construction site but within the military boundaries. Trailers, equipment, or materials shall not be open to public view with the exception of those items which are in support of ongoing work on any given day. Materials shall not be stockpiled outside the fence in preparation for the next day's work. Mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and like equipment, shall be parked within the fenced area at the end of each work day.

1.6.3 Supplemental Storage Area

Upon Contractor's request, the Contracting Officer will designate another or supplemental area for the Contractor's use and storage of trailers, equipment, and materials. This area may not be in close proximity of the construction site but shall be within the military boundaries. Fencing of materials or equipment will not be required at this site; however, the Contractor shall be responsible for cleanliness and orderliness of the area used and for the security of any material or equipment stored in this area. Utilities will not be provided to this area by the Government.

1.6.4 Appearance of Trailers

Trailers utilized by the Contractor for administrative or material storage purposes shall present a clean and neat exterior appearance and shall be in a state of good repair. Trailers which, in the opinion of the Contracting Officer, require exterior painting or maintenance will not be allowed on the Site.

1.6.5 Maintenance of Storage Area

Fencing shall be kept in a state of good repair and proper alignment. Should the Contractor elect to traverse, with construction equipment or other vehicles, grassed or unpaved areas which are not established roadways, such areas shall be covered with a layer of gravel as necessary to prevent rutting and the tracking of mud onto paved or established roadways; gravel gradation shall be at the Contractor's discretion. Grass located within the boundaries of the construction site shall be mowed for the duration of the project. Grass and vegetation along fences, buildings, under trailers, and in areas not accessible to mowers shall be edged or trimmed neatly.

1.6.6 New Building

New buildings shall not be constructed on the Site.

1.6.7 Security Provisions

Adequate outside security lighting shall be provided at the Contractor's temporary facilities. The Contractor shall be responsible for the security of its own equipment; in addition, the Contractor shall notify the appropriate law enforcement agency requesting periodic security checks of the temporary project field office.

1.7 GOVERNMENT'S FIELD OFFICES

1.7.1 General

All structures other than storage sheds installed under this section shall be provided with, as a minimum, the following services:

1.7.2 U.S. Army Corps Of Engineers (USACE) Field Office

The Contractor shall furnish at the job site, prior to the start of work, a field office for the use by USACE representatives for the duration of the contract. Field office and contents will remain the property of the Contractor. The exact location will be designated by the Contracting Officer. The approximate location of field offices is shown on Drawing G-03. The building shall be well constructed and properly ventilated and shall contain a closet, door and windows which shall be capable of being locked, four (4) chairs, one (1) plan rack and drawing board, two (2) desks, and one (1) two-drawer filing cabinet. Two of the chairs for use by government personnel should have ergonomic features: adjustable lumbar support, pneumatic seat height adjustment, adjustable arms, contoured front edge. The Contractor shall also provide adequate electric lighting, minimum 6 duplex electrical receptacles, drinking water, heat, plumbed toilet facilities, air conditioning, janitorial services and maintenance services. In addition the Contractor shall make arrangements and pay connection fees and monthly usage for electrical and 4-line telephone service, one dedicated to fax, one dedicated to modem and two dedicated to voice. The field office shall be removed from the project site when and as directed by the Contracting Officer.

The Contractor shall also supply one 30 foot flagpole with accessories to be posted as directed outside the Contracting Officer's trailer and one American flag, approximately three feet by four feet.

Contractor shall supply toner cartridges for printers and copiers; paper, paper towels, toilet paper, cups and miscellaneous supplies for the trailers for the duration of the contract. In addition to the above, the Contractor shall provide the following computers and office equipment, and other items for use by the USACE during the contract.

1.7.2.1 Personal Computers

The Contractor shall provide three (3) personal computers with the following hardware:

Desktop:

- a. Dell mini tower with Intel Pentium 4 Processor 3GHz or equivalent;
- b. High speed cache memory controller with at least 512 KB L2 PIPELINE BURST CACHE;

- c. Operating Systems: Microsoft Window XP professional, SP2 with media;
- d. File System: NTFS file system for all operating systems;
- e. (1) 3.5 inch 1.44 MB diskette drives with hard drive controller;
- f. Hard drive controller with 60 GB hard drive with access time of 9 ms;
- g. Front and rear USB Ports;
- h. 3 COM 10/100MB Base-T Ethernet Network Interface Card (NIC);
- i. Microsoft TCP/IP;
- j. Sound Card WI SPEAKERS;
- k. Enhanced 101 keyboard;
- l. 6 outlet surge protector;
- m. Memory: 1.0GB DDR;
- n. 17" LCD Flat Panel SVGA high resolution COLOR monitor or better with refresh rate 75Hz or better and 8Mb Color Graphics;
- o. 3 Button ergonomic mouse and mouse pad;
- p. 16X DVD +/-RW and 16X DVD w/SonicRecordNow! Deluxe or equivalent;
- q. Diamond Viper V770D Video Card or better;
- r. Modem V.90 Or V.92 56KB Baud (U.S. Robotics or equal);
- s. DSL or Cable Modem;
- t. Audio: Integrated Audio;
- u. PS2 Serial Port enable;
- v. Microsoft Office 2000 Professional Suite;
- w. Lotus Smart Suite and Adobe Acrobat Reader;
- x. Signature card reader: Gradkell Computer Inc. Part# 050-0300
Description: Argus 300 (card reader and PCI adapter package) for CEFMS: phone# (256)-722-8585 X37 (Mr. Wayne Wright)
- y. Norton Antivirus Software 2002 and periodic updates license during the duration of the contract.
- z. Limited Warranty Plus NBD On-Site Service for the duration of the contract
- aa. Gold Technical Support, Optiplex for the duration of the contract.

Notebook:

- a. Latitude D610: Intel Pentium M Processor 730 (1.60 GHz) 14.1 XGA, Intel GMA 900 or equivalent;
- b. Operating Systems: Microsoft Windows XP professional, SP2, with media;
- c. Memory: 1GB DDR2 533Mhz SDRAM, 2 DIMMS;
- d. Hard Drives: 60GB;
- e. Floppy Drive;
- f. Mouse: Dell USB 2 button optical mouse;
- g. Modem V.90 Or V.92 56KB Baud (U.S. Robotics or equal)
- h. DSL or Cable Modem
- i. 65 W A/C /Adapter;
- j. 8X DVD+/- RW w/Sonic Digital Media and Cyberlink PowerDVD;
- k. Nylon Classic Carrying Case;
- l. Microsoft Office 2000 Professional Suite;
- m. Lotus Smart Suite and Adobe Acrobat Reader;
- n. Signature card reader: Gradkell Computer Inc. Part# 050-0300
Description: Argus 300 (card reader and PCI adapter package) for CEFMS: phone# (256)-722-8585 X37 (Mr. Wayne Wright)
- o. Norton Antivirus Software 2002 and periodic updates license during the duration of the contract.
- p. 6 outlet surge protector;
- q. Limited Warranty Plus NBD On-Site Service for the duration of the contract

r. NTFS File system for all Operating system

The Contractor shall also make arrangements and pay all connection costs and fees for either Business DSL or Cable Modem Service to the field office for data line connection. These services shall be arranged for the entire contract duration. The field office shall be removed from the project site when and as directed by the Contracting Officer.

DSL or Cable Modem Service: The Contractor shall provide Business DSL or Cable modem service with all required equipment (modems, filters, etc.). DSL service shall be 1.5Mbps downstream/384Kbps upstream. Service shall utilize a Static IP address for the connection. Contractor shall pay all costs associated with this service including any ISP fees. DSL or Cable Modem service shall be a 'dedicated' service, and this line shall not be shared with any other Users (i.e., Contractors Field Office Trailer and USACE Field Office Trailer shall not utilize the same DSL or Cable Modem line via an Ethernet Switch/Hub).

The contractor will agree to accept responsibilities and comply with procedures indicated below in connection with the furnishing of Contractor-owned computers for use by Government personnel in accordance with contract requirements.

- a. The computers must be dedicated exclusively for Government use. Contractor will not use any computer it supplies which is designated for use by the Government. Contractor will assure that the Central Processing Unit (CPU) is electronically isolated from the contractor's and not inter-connected via Local Area Network (LAN).
- b. Normal access to the computer shall be restricted to Corps of Engineers personnel. Contractor shall set up computers in a secure area and give the keys to the Government. Contractors must immediately notify Government personnel when emergency access to the computer location was exercised by non-Government individuals, and what the circumstances were.
- c. If the CPU hard drive fails, the Government will furnish an equivalent hard drive to the owner of the computer, and the old hard-drive will be returned to the Government. Contractor shall not remove any hard drive nor proceed with any repair of the computer unless an authorized Government employee witnesses and approves of the repair.
- d. At the time of return of the computer, the Contractor will allow the Government to first remove all information from the hard-drive.
- e. The Contractor agrees to provide a written certification signed by an authorized officer of the company agreeing to the above policy.

1.7.2.2 Printers

The Contractor shall provide two Hewlett Packard LaserJet 4100 Series Printer or equivalent LaserJet Printer.

1.7.2.3 Copier

The Contractor shall provide a plain-paper, desktop, autoseed, reduction,

enlargement, sorting, stapling, monochrome, minimum 10 copies per minute. The copier shall be equipped with individual trays for 8.5" x 11", 8.5" x 14", and 11" x 17" paper. The supply of paper and toner shall be replenished by the Contractor as required by the Contracting Officer. The Contractor shall also provide copier service as required.

1.7.2.4 Fax Machine

The Contractor shall provide a monochrome fax machine with a minimum feed of three (3) - 8 ½" x 11" pages per minute. The fax machine shall be capable of receiving on plain white bond paper.

1.7.2.5 Telephone

The Contractor shall provide four 2-line phones with conferencing and speaker phone capabilities compatible with phone service. Telephones shall be installed on each of the two desks, the secretarial desk and the conference table.

1.7.2.6 Telephone Answering Machine

The Contractor shall provide a standard telephone answering machine, compatible with standard telephone line and local service, with remote message retrieval ability.

1.7.2.7 First Aid Kit

The Contractor shall provide a first aid kit. As a minimum the kit shall include antiseptic kit, eyewash solution, bandages, insect sting medication, aspirin and acetaminophen, and coldpack.

1.7.2.8 Fire Extinguisher

The Contractor shall provide a fire extinguisher of the type as required for a trailer the same size as office.

1.7.2.9 Digital Camera

The Contractor shall provide a digital camera meeting the same requirements as specified in 01380 Project Photographs.

1.7.2.10 Partioned Meeting Area

The Contractor shall provide one partitioned meeting area having a minimum of 160 square feet of floor area. The meeting area shall contain the following equipment:

- a. One office conference table, 3-1/2 feet by 10 feet with laminated top.
- b. Eight straight backed office chairs.
- c. Bulletin board, 4 feet by 6 feet.
- d. Waste basket.
- e. Vertical filing plan rack for twelve sets of 30 inch by 48 inch plans.

1.7.2.11 Secretarial Area

The Contractor shall provide An open secretarial area having a minimum of 150 square feet of floor area. This area shall contain, as a minimum, the following equipment:

- a. One L-type secretarial desk and chair, meeting ER 386-1-96 ergonomic standards including adjustable chairs, adjustable keyboard shelf, wrist pads, etc.
- b. One typewriter, IBM electric or equivalent.
- c. One drafting table and chair.
- d. One electronic calculator with answer registered to at least eleven figures.
- e. One telephone with extension and intercom connection to each of the two office areas described, with current local telephone directory.
- f. One office table, 3 feet by 8 feet with laminated top.
- g. Two, four drawer, lockable filing cabinets, legal size.
- h. Three-tier book case, 3 feet wide by 3 feet high by 12 inches deep.
- i. Waste basket.
- j. One paper towel dispenser with towels.
- k. One paper cup dispenser with cups.
- l. One water cooler/heater.
- m. One refrigerator.
- n. Toilet facilities as specified.

The Contractor shall provide qualified full time secretarial services on a daily basis (minimum 40 hrs per week) in the Contracting Officer's trailer for the use of the Contracting Officer.

1.7.3 U.S. Environmental Protection Agency (USEPA) Field Office

The Contractor shall furnish at the job site, prior to the start of work, a 50 feet by 12 feet field office for the use by USEPA representatives for the duration of the contract. Field office and contents will remain the property of the Contractor. The exact location will be designated by the Contracting Officer. The building shall be well constructed and properly ventilated and shall contain a closet, door and windows which shall be capable of being locked, four (4) chairs, one (1) plan rack and drawing board, two (2) desks, and one (1) two-drawer filing cabinet. Two of the chairs should have ergonomic features: adjustable lumbar support, pneumatic seat height adjustment, adjustable arms, contoured front edge. The Contractor shall also provide adequate electric lighting, minimum 6 duplex electrical receptacles, drinking water, heat, plumbed toilet facilities, air conditioning, janitorial services and maintenance services. In addition the Contractor shall make arrangements and pay connection fees and monthly

usage for electrical and 4-line telephone service, one dedicated to fax, one dedicated to modem and two dedicated to voice. The Contractor shall arrange to transfer EPA's existing telephone service, including voicemail, to the new trailer. The actual phone number will be provided in the field.

The field office shall be removed from the project site when and as directed by the Contracting Officer.

Contractor shall supply toner cartridges for printers and copiers; paper, paper towels, toilet paper, cups and miscellaneous supplies for the trailers for the duration of the contract. In addition to the above, the Contractor shall provide the following computers and office equipment, and other items for use by the USEPA during the contract.

1.7.3.1 Personal Computers

The Contractor shall provide one (1) personal computer with the following:

Desktop:

- a. Dell mini tower with Intel Pentium 4 Processor 3GHz or equivalent;
- b. High speed cache memory controller with at least 512 KB L2 PIPELINE BURST CACHE;
- c. Operating Systems: Microsoft Window XP professional, SP2 with media;
- d. File System: NTFS file system for all operating systems;
- e. (1) 3.5 inch 1.44 MB diskette drives with hard drive controller;
- f. Hard drive controller with 60 GB hard drive with access time of 9 ms;
- g. Front and rear USB Ports;
- h. 3 COM 10/100MB Base-T Ethernet Network Interface Card (NIC);
- i. Microsoft TCP/IP;
- j. Sound Card WI SPEAKERS;
- k. Enhanced 101 keyboard;
- l. 6 outlet surge protector;
- m. Memory: 1.0GB DDR;
- n. 17" LCD Flat Panel SVGA high resolution COLOR monitor or better with refresh rate 75Hz or better and 8Mb Color Graphics;
- o. 3 Button ergonomic mouse and mouse pad;
- p. 16X DVD +/-RW and 16X DVD w/SonicRecordNow! Deluxe or equivalent;
- q. Diamond Viper V770D Video Card or better;
- r. Modem V.90 Or V.92 56KB Baud (U.S. Robotics or equal);
- s. DSL or Cable Modem;
- t. Audio: Integrated Audio;
- u. PS2 Serial Port enable;
- v. Microsoft Office 2000 Professional Suite;
- w. Word Perfect Office X3;
- x. Lotus Smart Suite and Adobe Acrobat Reader;
- y. Signature card reader: Gradkell Computer Inc. Part# 050-0300
Description: Argus 300 (card reader and PCI adapter package) for CEFMS: phone# (256)-722-8585 X37 (Mr. Wayne Wright)
- z. Norton Antivirus Software 2002 and periodic updates license during the duration of the contract.
- aa. Limited Warranty Plus NBD On-Site Service for the duration of the contract
- bb. Gold Technical Support, Optiplex for the duration of the contract.

Notebook:

- a. Latitude D610: Intel Pentium M Processor 730 (1.60 GHz) 14.1 XGA,

- Intel GMA 900 or equivalent;
- b. Operating Systems: Microsoft Windows XP professional, SP2, with media;
- c. Memory: 1GB DDR2 533Mhz SDRAM, 2 DIMMS;
- d. Hard Drives: 60GB;
- e. Floppy Drive;
- f. Mouse: Dell USB 2 button optical mouse;
- g. Modem V.90 Or V.92 56KB Baud (U.S. Robotics or equal)
- h. DSL or Cable Modem
- i. 65 W A/C /Adapter;
- j. 8X DVD+/- RW w/Sonic Digital Media and Cyberlink PowerDVD;
- k. Nylon Classic Carrying Case;
- l. Microsoft Office 2000 Professional Suite;
- m. Word Perfect Office X3;
- n. Lotus Smart Suite and Adobe Acrobat Reader;
- o. Signature card reader: Gradkell Computer Inc. Part# 050-0300
Description: Argus 300 (card reader and PCI adapter package) for CEFMS: phone# (256)-722-8585 X37 (Mr. Wayne Wright);
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1.7.3.2 Printers

The Contractor shall provide one Hewlett Packard LaserJet 4100 Series Printer or equivalent LaserJet Printer.

1.7.3.3 Copier

The Contractor shall provide a plain-paper, desktop, autofeed, reduction, enlargement, sorting, stapling, monochrome, minimum 10 copies per minute. The copier shall be equipped with individual trays for 8.5" x 11", 8.5" x 14", and 11" x 17" paper. The supply of paper and toner shall be replenished by the Contractor as required by the USEPA. The Contractor shall also provide copier service as required.

1.7.3.4 Fax Machine

The Contractor shall provide a monochrome fax machine with a minimum feed of three (3) - 8 ½" x 11" pages per minute. The fax machine shall be capable of receiving on plain white bond paper.

1.7.3.5 Telephone

The Contractor shall provide four 2-line phones with conferencing and speaker phone capabilities compatible with phone service. Telephones shall be installed on each of the two desks, the secretarial desk and the conference table.

1.7.1.5 Telephone Answering Machine

The Contractor shall provide a standard telephone answering machine, compatible with standard telephone line and local service, with remote message retrieval ability.

1.7.3.6 First Aid Kit

The Contractor shall provide a first aid kit. As a minimum the kit shall include antiseptic kit, eyewash solution, bandages, insect sting medication, aspirin and acetaminophen, and coldpack.

1.7.3.7 Fire Extinguisher

The Contractor shall provide a fire extinguisher of the type as required for a trailer the same size as office.

1.7.3.8 Partioned Meeting Area

The Contractor shall provide one partitioned meeting area having a minimum of 160 square feet of floor area. The meeting area shall contain the following equipment:

- a. One office conference table, 3-1/2 feet by 10 feet with laminated top.
- b. Eight straight backed office chairs.
- c. Bulletin board, 4 feet by 6 feet.
- d. Waste basket.
- e. Vertical filing plan rack for twelve sets of 30 inch by 48 inch plans.

1.7.3.9 Open Area

The Contractor shall provide an open area having a minimum of 150 square feet of floor area. This area shall contain, as a minimum, the following equipment:

- a. One drafting table and chair.
- b. One electronic calculator with answer registered to at least eleven figures.
- c. One telephone with extension and intercom connection to each of the two office areas described, with current local telephone directory.
- d. One office table, 3 feet by 8 feet with laminated top.
- e. Two, four drawer, lockable filing cabinets, legal size.
- f. Three-tier book case, 3 feet wide by 3 feet high by 12 inches deep.
- g. Waste basket.
- h. One paper towel dispenser with towels.
- i. One paper cup dispenser with cups.
- j. One water cooler/heater.
- k. One refrigerator.

1. Toilet facilities as specified.

The Contractor shall provide qualified full time secretarial services on a daily basis (minimum 40 hrs per week) in the Contracting Officer's trailer for the use of the Contracting Officer.

1.8 SAFETY, SECURITY, COMMUNICATIONS, AND CONTRACTOR'S OFFICES

1.8.1 Safety, Security, and Communications Offices

A partitioned area shall be provided for safety, security and communications personnel, having a minimum floor space of 196 square feet. This area shall contain, as a minimum, the following equipment:

- a. Two office desks with lockable drawers, and three office chairs.
- b. Two telephones having a circuit separate from all others on site.
- c. One office table measuring 3 feet by 8 feet.
- d. Two lockable, four drawer filing cabinets.
- e. A minimum of two windows providing visibility of the site.
- f. One base and six portable two-way radios. All sets shall be intrinsically safe, capable of transmitting to and receiving from any other set, at any point within the Federal Creosote Site. All portable units shall be rechargeable, and shall be capable of operating continuously without recharge for three hours.

1.8.2 Contractor's Offices

A partitioned office shall be provided for the use of the Contractor, having a minimum of 96 square feet of floor area. The office shall contain at least two operable windows with screens and shall be supplied with the following equipment:

- a. One office desk with lockable drawers and chair.
- b. One telephone with extension and intercom connection to the secretarial station.
- c. One fire resistant, 4 drawer, lockable filing cabinet.
- d. One electronic calculator with answer registered to at least eleven figures.

1.9 EMERGENCY MEDICAL FACILITY

The emergency medical facility shall consist of an area having a minimum floor space of 96 square feet. The facilities shall contain, as a minimum, the following equipment and supplies:

- a. Two stretchers.
- b. One set of crutches.
- c. Two self contained air respiratory devices.

- d. One cot.
- e. Three blankets.
- f. First aid medications appropriate for the initial treatment of burns, abrasions, fractures, and ingestion or dermal contact with on-site hazardous waste.

1.10 PERSONNEL HYGIENE FACILITIES (SHOWER TRAILER)

The Contractor shall provide the equipment and fixtures specified below in order to provide for the proper hygiene and decontamination of all on-site personnel.

- a. Shower facilities with at least one shower for on-site personnel.
- b. Locker room for on-site personnel.
- c. An area where all personnel safety equipment and protective clothing can be stored.
- d. Toilet facilities with at least one toilet and sink for every six on-site personnel.
- e. Sanitary waste holding tank and piping from Personnel Hygiene Facility and site offices including excavation and backfill.

All equipment and fixtures shall be properly supplied and maintained in a clean condition. Drain water from all washing facilities shall be conveyed to an on-site holding tank for subsequent disposal at an approved sewage receiving facility.

1.11 EQUIPMENT STORAGE/LUNCH AREA

The Contractor shall provide a separate uncontaminated lunch area of sufficient size for all Contractor personnel on site. Such an area may be combined with Equipment Storage in one facility, as specified below. The Contractor shall furnish all the furniture required in the lunch room to accommodate the maximum number of Contractor personnel working on any single day.

A separate or partitioned equipment storage area shall also be provided and shall have access through a lockable door. The area for equipment storage shall not be less than 96 square feet. Sufficient shelving shall be installed for storage and inventory control of small items. In addition, this area shall contain one four drawer lockable filing cabinet and a wooden lockable locker sufficient for the storage of surveying and testing instruments.

1.12 ON-SITE CONTAMINATED EQUIPMENT AREA

The Contractor shall provide an on-site contaminated equipment storage area at the entrance point to each Contamination Reduction Zone facility area (lined with polyethylene).

Each contaminated equipment storage area shall include but not necessarily be limited to the following:

- a. Boot rack for washing and storage.
- b. Drums for the disposal of protective clothing.
- c. A 10 foot by 10 foot temporary structure for the storage of contaminated materials with equipment used daily.
- d. Emergency eyewash and shower and fire extinguisher.

1.13 PARKING

At least five parking spaces shall be reserved for the use of the Contracting Officer and his/her representatives, including visitors.

1.14 Outdoor Lighting

The Contractor shall determine the extent of existing outdoor lighting within the Support Zone. If there is no lighting or existing lighting does not meet the requirements below, the Contractor shall furnish and install a complete operating outdoor lighting system throughout the designated Support Zone.

The lighting system shall include wood-pole-mounted 400-watt high pressure sodium luminaries supported on 4-foot steel arms with 30-foot mounting height above grade. Provide one pole at or adjacent to the Support Zone. The system shall include all equipment and materials (such as transformers and circuit protective devices) and conductors.

1.15 CLEANUP

Construction debris, waste materials, packaging material and the like shall be removed from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways shall be cleaned away. Materials resulting from demolition activities which are salvageable shall be stored within the fenced area described above or at the supplemental storage area. Stored material not in trailers, whether new or salvaged, shall be neatly stacked when stored.

1.16 RESTORATION OF STORAGE AREA

Upon completion of the project and after removal of trailers, materials, and equipment from within the fenced area, the fence shall be removed and will become the property of the Contractor. Areas used by the Contractor for the storage of equipment or material, or other use, shall be restored to the original or better condition. Gravel used to traverse grassed areas shall be removed and the area restored to its original condition, including top soil and seeding as necessary.

1.17 ELECTRICAL WORK

All work shall be performed by experienced electricians under the general supervision and control of a State, City, or County licensed electrician with verifiable credentials. Proof of licensing of supervising electricians shall be provided to the COR. The licensed electrical contractor shall verify in writing to the COR that unlicensed electrical technician(s) is/are familiar with the applicable code requirements and have received safety and health training on the hazards involved.

-- End of Section --

SECTION 01525

SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

- | | |
|-------------|--|
| ANSI A10.32 | Personal Fall Protection - Safety Requirements for Construction and Demolition Operations |
| ANSI Z359.1 | (1992; R 1999) Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components |

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

- | | |
|----------|---|
| NFPA 241 | (2004) Safeguarding Construction, Alteration, and Demolition Operations |
| NFPA 51B | (2003) Fire Prevention During Welding, Cutting, and Other Hot Work |
| NFPA 70 | (2005) National Electrical Code |
| NFPA 70E | (2004) Electrical Safety in the Workplace |

U.S. ARMY CORPS OF ENGINEERS (USACE)

- | | |
|-------------|---|
| EM 385-1-1 | (2003) Safety and Health Requirements Manual |
| ER 385-1-92 | (2003) Safety - Safety and Occupational Health Document Requirements for Hazardous, Toxic, and Radioactive Waste (HTRW) and Ordnance and Explosive Waste (OEW) Activities |

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

- | | |
|-----------------|---|
| 29 CFR 1910 | Occupational Safety and Health Standards |
| 29 CFR 1910.146 | Permit-required Confined Spaces |
| 29 CFR 1915 | Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment |
| 29 CFR 1926 | Safety and Health Regulations for |

Construction

29 CFR 1926.500

Fall Protection

1.2 DESCRIPTION OF WORK

This section provides requirements for implementing practices and procedures for working safely and in compliance with OSHA and USACE regulations while performing remedial activities at the Cornell-Dubilier Electronics Site - OU-2. This section primarily addresses the safety and health occupational requirements for the site. For Safety and Health emergency response requirements, refer to Section 01351 SAFETY, HEALTH, AND EMERGENCY RESPONSE. For Health and Safety requirements for asbestos abatement, refer to Section 13280A ASBESTOS HAZARD CONTROL ACTIVITIES.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

Government acceptance is required for submittals with a "G, A" designation.

SD-01 Preconstruction Submittals

Accident Prevention Plan (APP); G

Activity Hazard Analysis (AHA); G

Lead Compliance Plan; G

Submit all training curriculums for Contractor-provided site-specific training courses.

SD-06 Test Reports

Monthly Exposure Reports; G

Submit monthly exposure reports, including exposure monitoring and sampling results.

Accident Reports; G

Regulatory Citations and Violations;

Contractor Safety Self-Evaluation Checklist;

SD-07 Work Certificates

Confined Space Entry Permit

Hot Work Permit

1.4 DEFINITIONS

a. High Visibility Accident. Any mishap which may generate publicity and/or high visibility.

b. Medical Treatment. Treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even though provided by a physician or registered personnel.

c. Recordable Injuries or Illnesses. Any work-related injury or illness that results in:

- (1) Death, regardless of the time between the injury and death, or the length of the illness;
- (2) Days away from work (any time lost after day of injury/illness onset);
- (3) Restricted work;
- (4) Transfer to another job;
- (5) Medical treatment beyond first aid;
- (6) Loss of consciousness; or
- (7) A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (1) through (6) above.

d. "USACE" property and equipment specified in USACE EM 385-1-1 should be interpreted as Government property and equipment.

1.5 CONTRACTOR SAFETY SELF-EVALUATION CHECKLIST

Contracting Officer will provide a "Contractor Safety Self-Evaluation checklist" to the Contractor at the pre-construction conference. The checklist will be completed monthly by the Contractor and submitted with each request for payment voucher. An acceptable score of 90 or greater is required. Failure to submit the completed safety self-evaluation checklist or achieve a score of at least 90, will result in a retention of up to 10 percent of the voucher.

1.6 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this contract, work performed under this contract shall comply with EM 385-1-1, and applicable federal, state, and local safety and occupational health laws and regulations. This includes, but is not limited to, Occupational Safety and Health Administration (OSHA) Standards, 29 CFR 1910, especially Section 120, "Hazardous Waste Site Operations and Emergency Response" and 29 CFR 1926, especially Section 65, "Hazardous Waste Site Operations and Emergency Response" and EPA (SOSG). Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements shall apply.

1.7 SITE QUALIFICATIONS, DUTIES AND MEETINGS

1.7.1 Personnel Qualifications

1.7.1.1 Site Safety and Health Officer (SSHO)

Site Safety and Health Officer (SSHO) shall be provided at the work site at all times to perform safety and occupational health management, surveillance, inspections, and safety enforcement for the Contractor. The SSHO shall meet the requirements of Section 01351 SAFETY, HEALTH, AND EMERGENCY RESPONSE (HTRW/UST).

1.7.1.2 Certified Industrial Hygienist (CIH)

Provide a Certified Industrial Hygienist (CIH) at the work site to perform safety and occupational health management, surveillance, inspections, and safety enforcement for the Contractor. The CIH shall be the safety and occupational health "competent person" as defined by USACE EM 385-1-1. The CIH shall have no other duties than safety and occupational health management, inspections, and/or industrial hygiene.

1.7.1.3 Certified Safety Trained Supervisor (STS)

Provide a Certified Safety Trained Supervisor (STS) at the work site to perform safety management, surveillance, inspections, and safety enforcement for the Contractor. The STS shall be the safety and occupational health "competent person" as defined by USACE EM 385-1-1. The STS shall be at the work site at all times whenever work or testing is being performed and shall conduct and document daily safety inspections. The STS shall have no other duties other than safety and occupational health management, inspections, and enforcement on this contract.

1.7.1.4 Competent Person for Confined Space Entry

Provide a competent person for confined space meeting the definition and requirements of EM 385-1-1.

1.7.2 Personnel Duties

1.7.2.1 Site Safety and Health Officer (SSHO)/Superintendent

The SSHO shall complete the personnel duties described in Section 01351 SAFETY, HEALTH, AND EMERGENCY RESPONSE (HTRW/UST).

1.7.2.2 Certified Industrial Hygienist (CIH)

- a. Perform safety and occupational health management, surveillance, inspections, and safety enforcement for the project.
- b. Perform as the safety and occupational health "competent person" as defined by USACE EM 385-1-1.
- c. Be on-site at least weekly and/or whenever work or testing is being performed.
- d. Conduct and document safety inspections.
- e. Shall have no other duties other than safety and occupational health management, inspections, and enforcement on this contract.

If the CIH is appointed as the SSHO all duties of that position shall also be performed.

1.7.3 Meetings

1.7.3.1 Preconstruction Conference

a. Contractor representatives who have a responsibility or significant role in accident prevention on the project shall attend the preconstruction conference. This includes the project superintendent, site safety and health officer, quality control supervisor, or any other assigned safety and health professionals who participated in the development of the APP (including the Activity Hazard Analyses (AHAs) and special plans, program and procedures associated with it).

b. The Contractor shall discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the contract. This list of proposed AHAs will be reviewed at the conference and an agreement will be reached between the Contractor and the Contracting Officer's representative as to which phases will require an analysis. In addition, a schedule for the preparation, submittal, review, and acceptance of AHAs shall be established to preclude project delays.

c. Deficiencies in the submitted APP will be brought to the attention of the Contractor at the preconstruction conference, and the Contractor shall revise the plan to correct deficiencies and re-submit it for acceptance. Work shall not begin until there is an accepted APP.

d. The functions of a Preconstruction conference may take place at the Post-Award Kickoff meeting for Design Build Contracts.

1.7.3.2 Safety Meetings

Safety meetings shall be conducted and documented as required by EM 385-1-1. Minutes showing contract title, signatures of attendees and a list of topics discussed shall be attached to the Contractors' daily quality control report.

1.8 ACCIDENT PREVENTION PLAN (APP)

An Accident Prevention Plan shall be developed in accordance with EM 385-1-1 and ER 385-1-92 Appendix C and submitted for government approval prior to work initiation and no later than 30 days after the NTP. The plan shall be job-specific and include any unusual or unique aspects of the project. Daily safety and health inspections shall be conducted to ensure that the work is being performed in accordance with the SSHP and all USACE and OSHA regulations. If there is an accident/incident, the Contracting Officer shall be notified immediately and an Accident Report filed within two days.

1.8.1 EM 385-1-1 Contents

In addition to the requirements outlined in Appendix A of USACE EM 385-1-1, the following is required:

a. Confined Space Entry Plan. Develop a confined space entry plan in accordance with USACE EM 385-1-1, applicable OSHA standards 29 CFR 1910,

29 CFR 1915, and 29 CFR 1926, and any other federal, state and local regulatory requirements identified in this contract. Identify the qualified person's name and qualifications, training, and experience. Delineate the qualified person's authority to direct work stoppage in the event of hazardous conditions. Include procedure for rescue by contractor personnel and the coordination with emergency responders. (If there is no confined space work, include a statement that no confined space work exists and none will be created.)

b. Fall Protection and Prevention (FP&P) Plan. The plan shall be site specific and address all fall hazards in the work place and during different phases of construction. It shall address how to protect and prevent workers from falling to lower levels when they are exposed to fall hazards above 1.8 m (6 feet). A qualified person for fall protection shall prepare and sign the plan. The plan shall include fall protection and prevention systems, equipment and methods employed for every phase of work, responsibilities, assisted rescue, self-rescue and evacuation procedures, training requirements, and monitoring methods. Fall Protection and Prevention Plan shall be revised every six months, reflecting any changes during the course of construction due to changes in personnel, equipment, systems or work habits. The accepted Fall Protection and Prevention Plan shall be kept and maintained at the job site for the duration of the project. The Fall Protection and Prevention Plan shall be included in the Accident Prevention Plan (APP).

d. Lead Compliance Plan. The safety and health aspects of lead work, prepared in accordance with Section 13281A LEAD BASED PAINT AWARENESS.

e. Asbestos Hazard Abatement Plan. The safety and health aspects of asbestos work, prepared in accordance with Section 13280A ASBESTOS ABATEMENT.

f. Site Safety and Health Plan. The safety and health aspects prepared in accordance with Section 01351 SAFETY HEALTH AND EMERGENCY RESPONSE (HTRW/UST).

g. PCB Plan. The safety and health aspects of Polychlorinated Biphenyls work, prepared in accordance with Sections 13284 REMOVAL AND DISPOSAL OF POLYCHLORINATED BIPHENALS and 13285 REMOVAL AND DISPOSAL OF PCB CONTAMINATED SOILS CONCRETE.

h. Site Demolition Plan. The safety and health aspects prepared in accordance with Section 02220 DEMOLITION and referenced sources. Include engineering survey as applicable.

i. Excavation Plan. The safety and health aspects prepared in accordance with Section 02310 EXCAVATION.

1.9 ACTIVITY HAZARD ANALYSIS (AHA)

AHAs for each major phase of work, shall be submitted and updated during the project. The AHAs format shall be in accordance with Figure 1-1 of EM 385-1-1. The analysis shall define the activities to be performed for a major phase of work, identify the sequence of work, the specific hazards anticipated, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable level. Work shall not proceed on that phase until the AHA has been accepted and a preparatory meeting has been conducted by the Contractor to discuss its contents with everyone engaged

in the activities, including the onsite Government representatives. The AHAS shall be continuously reviewed and, when appropriate, modified to address changing site conditions or operations.

1.10 SAFETY AND HEALTH PROGRAM

Contractor shall be aware that the current site owner may be operating at the site during demolition activities. Coordination with the site owner's health and safety program may be required.

1.11 DISPLAY OF SAFETY INFORMATION

Within one calendar day after commencement of work, erect a safety bulletin board at the job site. The safety bulletin board shall include information and be maintained as required by EM 385-1-1, section 01.A.06. Additional items required to be posted include:

- a. Confined space entry permit.
- b. Hot work permit.

1.12 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in the article "References." Maintain applicable equipment manufacturer's manuals.

1.13 EMERGENCY MEDICAL TREATMENT

Contractors will arrange for their own emergency medical treatment. Government has no responsibility to provide emergency medical treatment.

1.14 REPORTS

1.14.1 Accident Reports

- a. For recordable injuries and illnesses, and property damage accidents resulting in at least \$2,000 in damages, the Prime Contractor shall conduct an accident investigation to establish the root cause(s) of the accident, complete the USACE Accident Report Form 3394 and provide the report to the Contracting Officer within 2 calendar day(s) of the accident. The Contracting Officer will provide copies of any required or special forms.

1.14.2 Monthly Exposure Reports

Monthly exposure reporting to the Contracting Officer is required to be attached to the monthly billing request. This report is a compilation of employee-hours worked each month for all site workers, both prime and subcontractor. The Contracting Officer will provide copies of any special forms.

1.15 HOT WORK

Hot work shall be in accordance with Section 01351 SAFETY, HEALTH, AND EMERGENCY RESPONSE (HTRW/UST). CONTRACTORS ARE REQUIRED TO MEET ALL CRITERIA BEFORE A PERMIT IS ISSUED. The Contractor will provide at least two (2) twenty (20) pound 4A:20 BC rated extinguishers for normal "Hot Work". All extinguishers shall be current inspection tagged, approved

safety pin and tamper resistant seal. It is also mandatory to have a designated FIRE WATCH for any "Hot Work" done at this activity. The Fire Watch shall be trained in accordance with NFPA 51B and remain on-site for a minimum of 30 minutes after completion of the task or as specified on the hot work permit.

When starting work in the facility, Contractors shall require their personnel to familiarize themselves with the location of the nearest fire alarm boxes and place in memory the emergency Fire Division phone number. ANY FIRE, NO MATTER HOW SMALL, SHALL BE REPORTED TO THE RESPONSIBLE FIRE DIVISION IMMEDIATELY.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 CONSTRUCTION AND/OR OTHER WORK

The Contractor shall comply with USACE EM 385-1-1, NFPA 241, the APP, the AHA, Federal and/or State OSHA regulations, and other related submittals and activity fire and safety regulations. The most stringent standard shall prevail.

3.1.1 Hazardous Material Use

Each hazardous material must receive approval prior to being brought onto the job site or prior to any other use in connection with this contract. Allow a minimum of 10 working days for processing of the request for use of a hazardous material.

3.1.2 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices used in accordance with USACE EM 385-1-1 such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocyanates, lead-based paint are prohibited. The Contracting Officer, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials.

3.1.3 Unforeseen Hazardous Material

The design has identified materials such as PCB, lead paint, and friable and non-friable asbestos. If additional material, not indicated, that may be hazardous to human health upon disturbance during construction operations is encountered, stop that portion of work and notify the Contracting Officer immediately. Within 14 calendar days the Government will determine if the material is hazardous. If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to "FAR 52.243-4, Changes" and "FAR 52.236-2, Differing Site Conditions."

3.2 PRE-OUTAGE COORDINATION MEETING

Contractors are required to apply for utility outages at least 15 days in advance. As a minimum, the request should include the location of the outage, utilities being affected, duration of outage and any necessary sketches. Special requirements for electrical outage requests are contained elsewhere in this specification section. Once approved, and prior to beginning work on the utility system requiring shut down, the Contractor shall attend a pre-outage coordination meeting with the Contracting Officer and the Public Utilities representative(s) to review the scope of work and the lock-out/tag-out procedures for worker protection. No work will be performed on energized electrical circuits unless proof is provided that no other means exist.

3.3 FALL HAZARD PROTECTION AND PREVENTION PROGRAM

The Contractor shall establish a fall protection and prevention program, for the protection of all employees exposed to fall hazards. The program shall include company policy, identify responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and evacuation procedures.

3.3.1 Training

The Contractor shall institute a fall protection training program. As part of the Fall Hazard Protection and Prevention Program, the Contractor shall provide training for each employee who might be exposed to fall hazards. A competent person for fall protection shall provide the training. Training requirements shall be in accordance with USACE EM 385-1-1, section 21.A.16.

3.3.2 Fall Protection Equipment and Systems

The Contractor shall enforce use of the fall protection equipment and systems designated for each specific work activity in the Fall Protection and Prevention Plan and/or AHA at all times when an employee is exposed to a fall hazard. Employees shall be protected from fall hazards as specified in EM 385-1-1, section 21. In addition to the required fall protection systems, safety skiff, personal floatation devices, life rings etc., are required when working above or next to water in accordance with USACE EM 385-1-1, paragraphs 05.H. and 05.I. Personal fall arrest systems are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall arrest systems are required when operating other equipment such as scissor lifts if the work platform is capable of being positioned outside the wheelbase. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, or travel. Fall protection must comply with 29 CFR 1926.500, Subpart M, USACE EM 385-1-1 and ANSI A10.32.

3.3.2.1 Personal Fall Arrest Equipment

Personal fall arrest equipment, systems, subsystems, and components shall meet ANSI Z359.1. Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest body support device. Body belts may only be used as a positioning device system (for uses such as steel reinforcing assembly and in addition to an approved fall arrest system). Harnesses shall have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated

for attachment to the rest of the system. Only locking snap hooks and carabiners shall be used. Webbing, straps, and ropes shall be made of synthetic fiber. The maximum free fall distance when using fall arrest equipment shall not exceed 1.8 m (6 feet). The total fall distance and any swinging of the worker (pendulum-like motion) that can occur during a fall shall always be taken into consideration when attaching a person to a fall arrest system.

3.3.3 Existing Anchorage

Existing anchorages, to be used for attachment of personal fall arrest equipment, shall be certified (or re-certified) by a qualified person for fall protection in accordance with ANSI Z359.1. Existing horizontal lifeline anchorages shall be certified (or re-certified) by a registered professional engineer with experience in designing horizontal lifeline systems.

3.3.4 Horizontal Lifelines

Horizontal lifelines shall be designed, installed, certified and used under the supervision of a qualified person for fall protection as part of a complete fall arrest system which maintains a safety factor of 2 (29 CFR 1926.500).

3.3.5 Guardrails and Safety Nets

Guardrails and safety nets shall be designed, installed and used in accordance with EM 385-1-1 and 29 CFR 1926 Subpart M.

3.3.6 Rescue and Evacuation Procedures

When personal fall arrest systems are used, the contractor must ensure that the mishap victim can self-rescue or can be rescued promptly should a fall occur. A Rescue and Evacuation Plan shall be prepared by the contractor and include a detailed discussion of the following: methods of rescue; methods of self-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility. The Rescue and Evacuation Plan shall be included in the Activity Hazard Analysis (AHA) for the phase of work, in the Fall Protection and Prevention (FP&P) Plan, and the Accident Prevention Plan (APP).

3.4 SCAFFOLDING

Employees shall be provided with a safe means of access to the work area on the scaffold. Climbing of any scaffold braces or supports not specifically designed for access is prohibited. Access to scaffold platforms greater than 6 m (20 feet) in height shall be accessed by use of a scaffold stair system. Vertical ladders commonly provided by scaffold system manufacturers shall not be used for accessing scaffold platforms greater than 6 m (20 feet) in height. The use of an adequate gate is required. Contractor shall ensure that employees are qualified to perform scaffold erection and dismantling. Do not use scaffold without the capability of supporting at least four times the maximum intended load or without appropriate fall protection as delineated in the accepted fall protection and prevention plan. Stationary scaffolds must be attached to structural building components to safeguard against tipping forward or backward. Special care shall be given to ensure scaffold systems are not overloaded. Side brackets used to extend scaffold platforms on self-supported scaffold

systems for the storage of material is prohibited. The first tie-in shall be at the height equal to 4 times the width of the smallest dimension of the scaffold base. Work platforms shall be placed on mud sills. Scaffold or work platform erectors shall have fall protection during the erection and dismantling of scaffolding or work platforms that are more than six feet. Delineate fall protection requirements when working above six feet or above dangerous operations in the Fall Protection and Prevention (FP&P) Plan and Activity Hazard Analysis (AHA) for the phase of work.

3.4.1 Stilts

The use of stilts for gaining additional height in construction, renovation, repair or maintenance work is prohibited.

3.5 EQUIPMENT

3.5.1 Material Handling Equipment

a. Material handling equipment such as forklifts shall not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions.

b. The use of hooks on equipment for lifting of material must be in accordance with manufacturer's printed instructions.

c. Operators of forklifts or power industrial trucks shall be licensed in accordance with OSHA.

3.6 EXCAVATIONS

Excavation work will be performed in accordance with the 29 CFR 1926.

3.6.1 Utility Locations

Prior to digging, the appropriate digging permit must be obtained. All underground utilities in the work area must be positively identified by a private utility locating service in addition to any station locating service and coordinated with the station utility department. Any markings made during the utility investigation must be maintained throughout the contract.

3.6.2 Utility Location Verification

The Contractor must physically verify underground utility locations by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within three feet of the underground system. Digging within 0.061 m (2 feet) of a known utility must not be performed by means of mechanical equipment; hand digging shall be used. If construction is parallel to an existing utility the utility shall be exposed by hand digging every 30.5 m (100 feet) if parallel within 1.5 m (5 feet) of the excavation.

3.6.3 Shoring Systems

Trench and shoring systems must be identified in the accepted safety plan and AHA. Manufacture tabulated data and specifications or registered engineer tabulated data for shoring or benching systems shall be readily available on-site for review. Job-made shoring or shielding shall have the

registered professional engineer stamp, specifications, and tabulated data. Extreme care must be used when excavating near direct burial electric underground cables.

3.6.4 Trenching Machinery

Trenching machines with digging chain drives shall be operated only when the spotters/laborers are in plain view of the operator. Operator and spotters/laborers shall be provided training on the hazards of the digging chain drives with emphasis on the distance that needs to be maintained when the digging chain is operating. Documentation of the training shall be kept on file at the project site.

3.7 UTILITIES WITHIN CONCRETE SLABS

Utilities located within concrete slabs or pier structures, bridges, and the like, are extremely difficult to identify due to the reinforcing steel used in the construction of these structures. Whenever contract work involves concrete chipping, saw cutting, or core drilling, the existing utility location must be coordinated with station utility departments in addition to a private locating service. Outages to isolate utility systems shall be used in circumstances where utilities are unable to be positively identified. The use of historical drawings does not alleviate the contractor from meeting this requirement.

3.8 ELECTRICAL

Electrical installations and appliances used by the Contractor shall meet applicable National Electrical Code specifications. All electrical devices utilized by the Contractor or subcontractors on this project shall be grounded and utilize ground fault circuit interrupter (GFCI) protected outlets.

3.8.1 Conduct of Electrical Work

Underground electrical spaces must be certified safe for entry before entering to conduct work. Cables that will be cut must be positively identified and de-energized prior to performing each cut. Positive cable identification must be made prior to submitting any outage request for electrical systems. Arrangements are to be coordinated with the Contracting Officer and Station Utilities for identification. The Contracting Officer will not accept an outage request until the Contractor satisfactorily documents that the circuits have been clearly identified. Perform all high voltage cable cutting remotely using hydraulic cutting tool. When racking in or live switching of circuit breakers, no additional person other than the switch operator will be allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method. When working in energized substations, only qualified electrical workers shall be permitted to enter. When work requires Contractor to work near energized circuits as defined by the NFPA 70, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety shoes, insulating gloves with leather protective sleeves, fire retarding shirts, coveralls, face shields, and safety glasses. In addition, provide electrical arc flash protection for personnel as required by NFPA 70E. Insulating blankets, hearing protection, and switching suits may also be required, depending on the specific job and as delineated in the Contractor's AHA.

3.8.2 Portable Extension Cords

Portable extension cords shall be sized in accordance with manufacturer ratings for the tool to be powered and protected from damage. All damaged extension cords shall be immediately removed from service. Portable extension cords shall meet the requirements of NFPA 70.

3.9 WORK IN CONFINED SPACES

The Contractor shall comply with the requirements in Section 06.I of USACE EM 385-1-1, OSHA 29 CFR 1910.146 and OSHA 29 CFR 1926.21(b)(6). Any potential for a hazard in the confined space requires a permit system to be used.

- a. Entry Procedures. Prohibit entry into a confined space by personnel for any purpose, including hot work, until the qualified person has conducted appropriate tests to ensure the confined or enclosed space is safe for the work intended and that all potential hazards are controlled or eliminated and documented. (See Section 06.I.06 of USACE EM 385-1-1 for entry procedures.) All hazards pertaining to the space shall be reviewed with each employee during review of the AHA.
- b. Forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained to ensure exposure to any hazardous atmosphere is kept below its' action level.
- c. Sewer wet wells require continuous atmosphere monitoring with audible alarm for toxic gas detection.

-- End of Section --

SECTION 01540

SECURITY

PART 1 GENERAL

1.1 SCOPE OF WORK

The Contractor shall furnish all labor, materials, equipment and incidentals necessary to provide security for the duration of the project. Work shall be performed as specified herein and identified in the Contractor's approved Security Plan.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2003) Safety and Health Requirements Manual (Contractors shall always check for the most current updates to the EM at http://hq.usace.army.mil/soh/hqusace_soh.htm)

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910 Occupational Safety and Health Standards

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Security Plan;G, A/E

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 GENERAL

The Contractor shall be responsible for maintaining site security and furnishing all labor, materials, equipment and incidentals to provide security for the project site, for all non-working hours, seven (7) days a week, including holidays, throughout the duration of the contract, including mobilization and demobilization.

The Contractor shall establish a security program prior to any field construction activities.

The Contractor shall be both responsible and liable for site security. The Contractor's security firm shall be identified in the Security Plan and approved by the Contracting Officer.

Maintain/erect warning and security signs around the site perimeter.

The Contractor shall provide control of all persons and vehicles entering and leaving the work sites.

The Contractor shall provide security identification specific to the site, for all on-site personnel and Contractor personnel authorized to enter the site.

3.2 SECURITY PLAN

The Contractor shall prepare and submit a Security Plan to the Contracting Officer for approval at least 14 calendar days prior to Pre-Work Conference and no later than 30 days after the Notice to Proceed.

3.2.1 Security Plan Objectives

The principal objectives of the Security Plan are:

- a. Deter, restrict, and/or control financial losses to the Government and the Contractor. This includes prevention or detection of the following: theft, vandalism, sabotage, and arson.
- b. To keep unauthorized people from entering the site and receiving any injuries.
- c. To keep unauthorized people from entering the site and removing equipment, or hazardous substances.
- d. To keep unauthorized people from taking action on the site that might exacerbate the environmental problem or interfere with its remediation.

3.2.2 Security Plan Contents

The plan shall address as a minimum, the following:

- a. Number of security personnel and security organization.
- b. Duties of each position in the organization.
- c. Name and experience of the proposed security firm.
- d. Names and qualification of security personnel.
- e. Description of proposed daily security operations.
- f. Method and frequency for conducting security checks.
- g. Description of how a breach of security will be handled. A breach of security shall include, but not be limited to, unauthorized personnel located on the site, unauthorized personnel attempting

to gain access to the site, broken fences and unlocked gates, and unauthorized personnel in the work zones.

- h. Location of security check points.
- i. Number of hand-held two-way radios with channel frequencies and appropriate license. Provide the Contracting Officer with one of these radios.
- j. List of personnel to be contacted in case of emergency.
- k. Safety training of security personnel.

3.3 SECURITY PERSONNEL

Conditions of employment for all site Security Officers shall include the following:

- a. Detailed pre-employment history establishing moral character and dependability.
- b. Applicant shall submit to a current physical examination provided by the Contractor's designated physician. This physical shall include drug testing, a list of all medicines applicant is currently taking, and any medication applicant has taken during the last year. Physical shall also include vital statistics, and tests to ensure the capabilities of applicant functioning on site without health restrictions.
- c. Investigation which clears applicant of felony convictions.
- d. Failure to maintain attentive and alert status in performance of duties, which includes sleeping while on duty and intoxication on the job, are completely unacceptable and shall be grounds for not employing or for terminating employment.
- e. Site Security Officers shall have 40 hours of Health and Safety Training in an approved course meeting the requirements of Section 126(b) (2) of 29 CFR 1910.
- f. Site Security Personnel shall have detailed knowledge of EM 385-1-1 and the Security Plan and have no less than eight hours of training in the Site Safety and Emergency Response Plan and their individual duties in evacuation of injured and disabled employees from both contaminated and non-contaminated areas of this project.
- g. In general, Site Security Officers shall be physically fit, literate in the English language, experienced, stable, reliable, and possess the physical and psychological skills that are necessary to control unauthorized persons on the site.
- h. If the Security Officer carries a weapon consisting of side arms and/or shotgun or rifle, weapon(s) shall be catalogued, including type, model, caliber, and serial number and inspected by the security firm. The Security Officer shall have proficiency training and maintain proficiency rating with the particular type of weapon carried, as required by state law.
- i. All security personnel shall comply with the requirements for

personnel including training and medical monitoring.

3.4 SITE SECURITY REQUIREMENTS

Site security requirements shall include the following:

- a. A Security Officer shall be on the site all non-working hours per day including holidays, weekends or days where no activities are in progress for the entire duration of the construction activities. A Security Officer shall patrol the Support, Contamination Reduction, and Exclusion Zones.
- b. A Security Center Office shall be established at the Support Zone. A small, temporary trailer or office building shall be equipped with a telephone, two-way radios, lights, and a desk. The office shall be established for the purposes of record-keeping and administering security.
- c. Maintain a log of all security incidents. This log shall be furnished to the Contracting Officer upon request.
- d. A chain link fence has been installed around the perimeter of construction areas as shown on the Contract Drawings.
- e. Gates in all fences shall remain closed, except when in use by authorized personnel.
- f. The Contracting Officer will have the right of approval and rejection of any and all security-assigned personnel of the Contractor for the duration of the contract. If approved by the Contracting Officer, the Contractor may designate a member of their staff as Site Security Officer, during normal working hours. The Contracting Officer may revoke this approval without cause or justification, at which time the Contractor shall immediately provide independent site security.
- g. Security Officers shall be responsible for touring the perimeter of the site on an hourly basis when there is no construction activity being performed, during the entire contract duration. The exact timing of the hourly tours shall be varied as to not allow a definable routine to develop. There shall be a log of the tours, with observed conditions recorded and maintained, at the Security Center Office.
- h. Security Officers shall be responsible for controlling conditions to ensure against any unauthorized entry. Should persons attempt unauthorized entry, the Security Officer shall be responsible for warning the individuals. If unauthorized persons ignore the warnings, the security officer shall notify appropriate law enforcement personnel to remove the persons.
- i. The Contracting Officer will maintain a list of personnel approved to be present on the job site. A copy of the list will be provided to the Contractor. Only authorized personnel may make changes to the job site list.
- j. A copy of the emergency checklist, providing all emergency numbers for hospitals, ambulance service, law enforcement, paramedics, and fire departments, shall be posted in all on-site offices and at

the designated project information board.

- k. Temporary lighting shall be provided to ensure effective surveillance at night at active construction areas.

3.5 PERSONNEL IDENTIFICATION

Provide security identification, specific to the site for all on-site personnel and Contractor personnel entering the site, showing:

- a. Name of individual
- b. Occupation
- c. Name of employer

The Contractor shall be responsible for and guarantee that security identification shall be worn by each individual and visible at all times while the individual is on site. Badge assignments shall be based on criteria included in the Contractor's Site Safety and Health Plan (SSHP) or as established by the Contracting Officer.

Improperly identified personnel shall be excluded from the site.

3.6 ENTRANCE CONTROL

Provide control of all persons, equipment, and vehicles entering and leaving the site. Entrance control shall include the following:

- a. Require each person to display proper identification.
- b. Require all personnel and visitors having access to the site to sign in and sign out, and maintain a log of all site access.
- c. Vehicular access beyond the fence gate to the Support Zone shall be restricted to authorized vehicles only. Use of site-designated parking areas shall be restricted to vehicles of Government, Contractor, subcontractors, on duty service personnel assigned to the site and visitors approved by the Contracting Officer.
- d. The Contractor shall accommodate and coordinate visits with local law enforcement agencies, including police, sheriff, highway patrol, emergency medical care units, fire department, and utility emergency teams.
- e. Site visitors shall not be permitted to enter active work areas unless approved by the Contracting Officer.
- f. The Contractor shall maintain a list of persons authorized for site entry and submit a copy of the list to the Contracting Officer on request.

3.7 BONDING AND UNIFORM REQUIREMENTS

The security firm shall be bonded.

Each Security Officer shall wear a uniform that displays the name of the security firm. These uniforms are to be complete, including hat, shirt, trousers, belt, and boots. Uniforms shall be pressed and boots shined. The officer shall present a neat, professional appearance.

During patrols, security personnel shall be in proper safety attire.

3.8 VISITOR CONTROL

All visitors must be approved by the Contracting Officer.

All visitors shall be required to read and sign an approved synopsis of the SSHP prior to entering the site.

Visitors shall be escorted at all times, except USEPA employees and representatives, USACE employees and representatives, and NJDEP employees and representatives who may proceed without escorts.

3.9 TRAFFIC CONTROL

In addition to the traffic control requirements specified in Section 02212 HANDLING AND DISPOSAL OF DRUMMED AND HAZARDOUS MATERIALS, the Contractor shall be responsible for controlling vehicular traffic on and through the site in order to assure safe and efficient operations.

Parking areas shall be regulated to insure free entry and egress to and from the site.

3.10 NON-PERMITTED PROCEDURES

Security personnel shall, in general, monitor, authorize entry, and inspect all areas of the project on a continuing basis and shall not serve any production work effort of the project.

In scheduling the site security personnel, the same employee shall not be scheduled for consecutive shifts.

The Security Officer shall remain on the site until the next shift replacement arrives. The site shall not be left unsecured.

-- End of Section --

SECTION 01550

SURVEYING

PART 1 GENERAL

1.1 SCOPE OF WORK

Contractor shall develop and make detail surveys and measurements required for demolition, including preconstruction, postconstruction, and topographic surveys.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-04 Drawings

Initial Site Drawings; G, A/E

Record Topographic Maps; G, A/E

Record topographic maps after slab restoration and paving.

SD-07 Certificates

Surveyor Elevation/Location Certifications; G, A/E

SD-11 Closeout Submittals

Surveyor Field Notes Data; G, A/E

Submit original and one copy of Surveyor's field book, calculations, and graphical layouts to the Contracting Officer upon completion of each phase of survey work. Include an accurate log of control and survey work as it progresses, all field notes, notations, and descriptions used and compiled during the field survey.

Surveyor in Place Volume Calculations For Aggregate Base And Backfill Material; G, A/E

1.3 QUALITY CONTROL

Maintain responsibility for all surveying performed at the site. The surveyor shall be a qualified and Registered Land Surveyor in the State of New Jersey. The surveyor shall have a minimum of two years of experience in construction surveying and layout and maintenance of record construction drawings, with a record of performing horizontal and vertical control requirements as stated in this section.

Submit Surveyor Elevation/Location Certifications verifying accuracy of

survey work to the Contracting Officer. Certificates signed by the Surveyor stating that elevations and locations of site construction features are in conformance, or nonconformance, with Contract Documents shall be submitted to the Contracting Officer at the completion of each phase of work requiring services of the Surveyor.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 GENERAL

Contractor shall provide all slope stakes, batter boards, and all other working lines, elevations and cut sheets.

Provide all material required for benchmarks, control points, batter boards, grade stakes, and structure and elevation stakes.

Contractor shall be solely responsible for all locations, dimensions and levels.

Safeguard all points, stakes, grade marks, monuments and benchmarks made or established for the work. Re-establish same if disturbed.

Keep transit and leveling instruments on the site at all times and a skilled instrument person available whenever necessary for layout of the work.

Keep professional, accurate, well organized, and legible notes of all measurements and calculations.

3.2 INSPECTION

3.2.1 Existing Conditions

Verify and define the existing conditions and location of structures within the construction limits.

3.2.2 Work Control Points

Establish the exact location of all work site reference and survey control points, which will be provided during the Pre-Work Conference, prior to the start of work. All work shall be referenced to and established from the control points (shown on the Contract Drawings), re-established where necessary, and maintained throughout the life of the contract. Horizontal and vertical control points shall be referenced to the permanent control monuments to an accuracy of one part in ten thousand. Any errors or apparent discrepancies found on the Contract Drawings or Specifications shall be called to the Contracting Officer's attention for interpretation prior to proceeding with the work. The Contracting Officer must be promptly notified of any discrepancies discovered. Provide control points at each location of work using closed traverse and leveling loops. Establish, place, and replace, as required, such additional stakes, markers, and other controls as may be necessary for control, intermediate checks, and guidance of construction operations.

3.3 RECORD INFORMATION

Record information shall meet the requirements in 01700 REMEDIAL PACKAGE CLOSEOUT AND RECORD DOCUMENTS.

3.3.1 Initial Site Drawings

Prepare topographic maps of site properties, property boundary surveys, impacted streets, and utilities. Submit each property map to the Contracting Officer 30 days prior to the start of work on that particular property.

3.3.2 Record Topographic Maps

Prepare and submit within 30 days of completion of slab restoration, record topographic maps showing slab restoration and paving.

3.4 SAMPLE LOCATIONS

Prepare and submit within 10 days of completion, maps showing the location of all sample locations including excavation and documentation.

3.5 COORDINATE LIST

Compute the coordinates of each surveyed point on the New Jersey State Plane Coordinate System using the 1983 North American Datum.

3.6 SURVEY NOTES

Record all fieldwork in a clear, legible, and complete manner. The Field Notes shall contain a complete description of the nature and location of the new and existing points. Include a sketch of the point locations and monument witness points in the Field Notes. Submit original and one copy of the Surveyor Field Notes Data to the Contracting Officer upon completion of each phase of survey work. The Surveyor in Place Volume Calculations For Aggregate Base And Backfill Material shall also be submitted.

3.7 SURVEY REQUIREMENTS

Establish lines and levels and locate and layout, utilizing total station instrumentation or similar means, all site features to be constructed or executed. These include, but are not limited to support zone facilities layout and areas of contamination. Re-verify layouts and volumes periodically during construction by the same means.

3.8 UTILITIES

Scan the construction site with electromagnetic or sonic equipment and mark the surface of the ground where existing underground utilities are discovered. Verify the locations, and if possible, elevations of existing piping, utilities, and record on the Record Drawings all type of underground obstructions not indicated or specified to be removed but indicated or discovered during scanning in locations to be traversed.

-- End of Section --

SECTION 01580

PROJECT IDENTIFICATION

PART 1 GENERAL

1.1 SCOPE OF WORK

Furnish all labor, equipment, materials and incidentals required to provide and erect an U.S. Army Corps of Engineers (USACE) project site sign, safety signs and a bulletin board.

The Contractor shall provide and erect a USACE project site sign and safety signs meeting the requirements of this section, at a location to be determined by the Contracting Officer. The sign requirements are shown at the end of this section. Wording to be included on the sign shall be provided by the Contracting Officer after award.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN WOOD-PRESERVERS' ASSOCIATION (AWPA)

AWPA C1	(2003) All Timber Products - Preservative Treatment by Pressure Processes
AWPA C2	(2003) Lumber, Timber, Bridge Ties and Mine Ties - Preservative Treatment by Pressure Processes

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Preliminary one line drawings of project rendering; G, A/E

Preliminary drawing indicating layout and text content; G, A/E

SD-04 Samples

Final rendering sample; G

Final framed rendering and copies; G

1.4 QUALITY ASSURANCE

1.4.1 Rendering

Provide the project rendering in accordance with the following drawing stages as required in paragraph entitled "Submittals". The following submittal data is required to properly identify the appropriate view and approve the final rendering of the facility. The final painted rendering will be used to produce the image for the signboard and framed photographic copies provided to the Contracting Officer.

1.4.1.1 Preliminary One Line Drawings

Provide three different views of the facility in a preliminary single line drawing (black and white) format. These three views will represent the best angles at which to view the proposed facility showing the best design features and the three dimensional character of the facility.

1.4.1.2 Final Rendering Sample

Provide a photographic copy (8 x 10 inches, minimum size) of final rendering for approval of color, landscaping, and foreground/background development prior to final submittal.

1.4.1.3 Final Framed Rendering and Copies

Provide final full color rendering of the proposed facility as specified.

1.5 PROJECT SIGN

Prior to initiating any work on site, provide one project identification sign at the location designated. Construct the sign in accordance with project sign detail attached at the end of this section. Maintain sign throughout the life of the project. Upon completion of the project, remove the sign from the site. Provide color rendering of the project. Reproduce the rendering on the signboard or enclose a copy of the rendering under a water-proof, transparent cover, and caulk for weather protection.

PART 2 PRODUCTS

2.1 MATERIALS

Materials shall conform to the requirements as shown on the Drawings at the end of this section and shall be suitable for use in an unprotected exterior environment. All lumber and timber materials shall be in conformance with AWPAC1 and AWPAC2.

PART 3 EXECUTION

3.1 GENERAL

The Contractor shall place signs, one every 100 feet, on the work area fence that bear the legend, in letters at least four inches high:

WARNING
HAZARDOUS WORK AREA
DO NOT ENTER UNLESS AUTHORIZED

The Contractor shall post hazard warning banners at areas of special hazard

including, but not limited to the perimeter of the Exclusion Zone. The Contractor shall provide all signs required on the Contract Drawings. Letters shall be at least four inches high.

3.2 INSTALLATION REQUIREMENTS

The USACE project site sign and the safety signs are to be mounted on four inch by four inch by eight foot treated timbers and set firmly into the ground above prevailing grade to permit public viewing and shall be installed during site mobilization.

3.3 PROJECT SIGN

Prior to initiating any work on site, provide one project identification sign at the location designated. Construct the sign in accordance with project sign detail attached at the end of this section. The Contractor shall include the EPA contact phone number on a separate sign that shall be placed next to the project sign. This detail is also attached at the end of this section. The Contractor shall verify the accuracy and update the information on the sign with the Contracting Officer Representative as necessary. Maintain signs throughout the life of the project. Upon completion of the project, remove the signs from the site. Provide color rendering of the project. Reproduce the rendering on the signboard or enclose a copy of the rendering under a water-proof, transparent cover, and caulk for weather protection.

The project signs shall be erected as soon as possible and within 15 calendar days after the date of Notice to Proceed.

Panels are fabricated using HDO (High-Density Overlay) plywood with dimensional lumber uprights and bracing. The sign faces are non-reflective vinyl.

All legends are to be die-cut or computer-out in the sizes and type-faces specified and applied to the white panel background following the graphic formats shown on the attached sheets.

No separate payment will be made for maintaining the signs and all costs in connection therewith will be considered the obligation of the Contractor. Upon completion of the project, the Contractor shall remove the signs from the work area.

3.4 BULLETIN BOARD

The USACE project site sign, bulletin board and the safety signs are to be removed from the site after contract completion.

-- End of Section --

All Construction Project Identification signs and Safety Performance signs are to be fabricated and installed as described below. The signs are to be erected at a location designated by the contracting officer and shall conform to size, format, and typographic standards.

The sign panels are to be fabricated from .75" High Density Overlay Plywood.

Sign graphics to be prepared on a white non-reflective vinyl film with positionable adhesive backing.

All graphics except for the Communications Red background with Corps signature on the project sign are to die-cut or computer cut nonreflective vinyl, pre-spaced legends prepared in the sizes and typesets specified and applied to the background panel following the graphic formats shown.

The 2' x 4' Communications Red panel (to match PMS-032) with full Corps signature (reverse version) is to be screen printed on the white background identification of the District / Division may be applied under the signature with white cut vinyl letters prepared to Corps standards

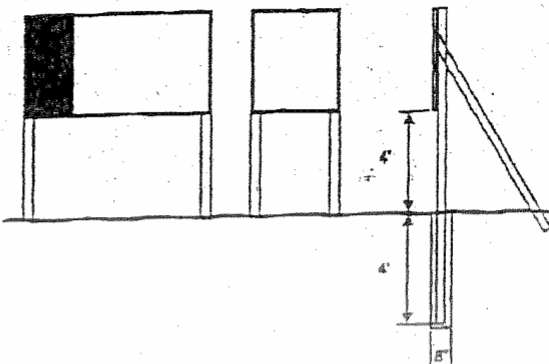
Drill and insert six (6) .375 T-nuts from the front face of the HDO sign panel. Position holes as shown. Flange of T-nut to be flush with sign face

Apply Graphic panel to prepared HDO plywood panel following manufacturers instructions

Sign uprights to be structural grade 4" x 4" treated Douglas Fir or Southern Yellow Pine. No 1 or better. Post to be 12' long Drill six (6) .375" mounting holes in uprights to align with T-nuts in sign panel. Countersink (8") back of hole to accept socket head cap screw (4" x .375").

Assemble sign panel and uprights. Install assembled sign panel and uprights in 4' hole. Local soil conditions and/or wind loading may require bolting additional 2" x 4" struts on inside face of uprights to reinforce installation shown.

Shown below the mounting diagram is a panel layout grid with spaces provided for project information. Photocopy this page and use as a worksheet when preparing sign Legend orders.



Construction Project Sign Legend Group 1

1 _____

2 _____

Legend Group 2 Division/District Names

1 _____

2 _____

Legend Group 3 Project Title

1 _____

2 _____

3 _____

Legend Group 4 Funding Abbrev

1 _____

2 _____

Legend Group 5a Construction/ASLT Legend Group 5b Construction/ASLT

1 _____

2 _____

3 _____

4 _____

5 _____

Safety Performance Sign Legend Group 1: Project Title

1 _____

2 _____

Legend Group 2: Construction/ASLT

1 _____

2 _____

SAFETY PERFORMANCE SIGN

Each contractor's safety record is to be posted on Corps managed or supervised construction projects and mounted with the construction project identification sign.

The graphic format, color, size and typefaces used on the sign are to be reproduced exactly as specified below. The title with First Aid logo in the top section of the sign and the performance record captions are standard for all signs of the type. Legend Groups 2 and 3 below identify the project and the contractor and are to be placed on the sign as shown.

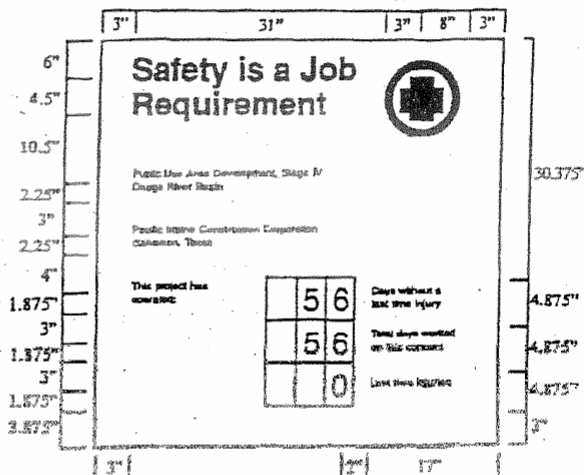
Safety record numbers are mounted on individual metal plates and are screw mounted to the background to allow for daily revisions to posted safety performance record.

Legend Group 1: Standard two-line title
"Safety is a Job requirement" with (8 od.)
Safety Green First Aid logo.
Color: to match PMS 347
Typeface: 3" Helvetica Bold
Color: Black

Legend Group 2: One to two-line project title legend describes the work being done under this contract and name of host project.
Color: Black
Typeface: 1.5" Helvetica Regular
Maximum line length: 42"

Legend Group 3: One to two-line identification; name of prime contractor and city, state address.
Color: Black
Typeface: 1.5" Helvetica Regular
Maximum line length: 42"

Legend Group 4: Standard safety record captions as shown.
Color: Black
Typeface: 12.5" Helvetica Regular



Sign Type	Legend Size	Panel Size	Post Size	Specification Code	Mounting Height	Color Bkg/Lgd
CID-02	Various	4' X 4'	4" X 4"	H00-3	48"	WH/BK - GR

Replaceable numbers are to be mounted on white .063 aluminum plates and screw-mounted to background.
Color: Black
Typeface: 3" Helvetica Regular
Plate size: 2.5" X 3"

All typography is flush left and rag right. Upper and lower case with initial capitals only as shown. Letter - and word - spacing to follow Corps standards.

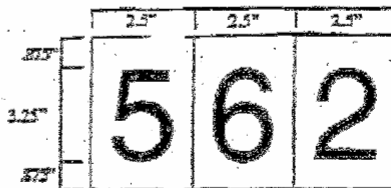
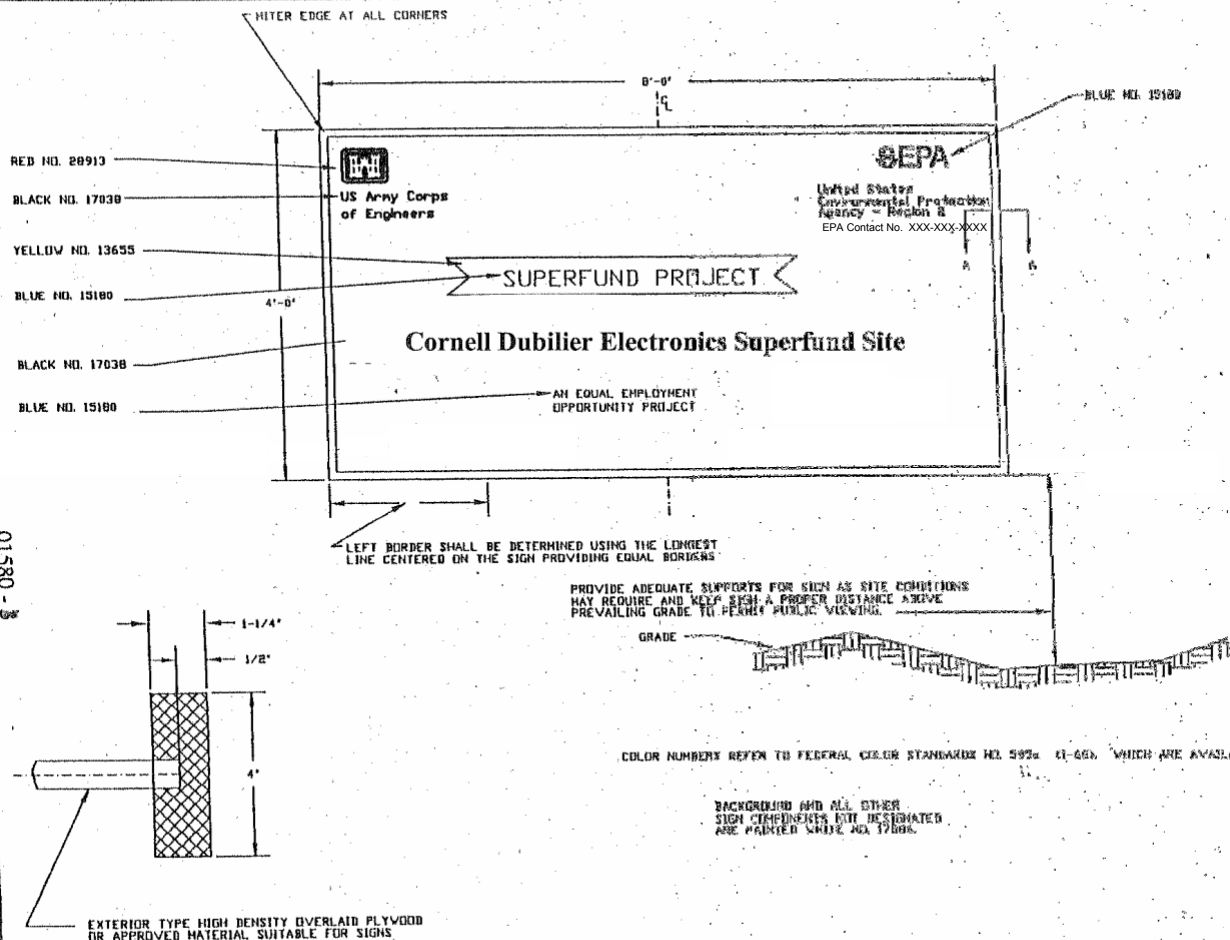


Fig. 1



SECTION "A-A"

U.S. EPA Contact Sign



SECTION 01700

REMEDIAL PACKAGE CLOSEOUT AND RECORD DOCUMENTS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

1.1.1 Remedial Closeout Package

Remedial closeout package shall consist of a Remedial Action Report that summarizes remedial activities at each remedial unit. A remedial unit is a single building or group of building remediated as a single cluster. The closeout package shall also contain administrative records for substantial completion and for final acceptance of each remedial unit, certification of decontamination of all equipment, and cleaning of the project site.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-11 Closeout Submittals

Remedial Unit Closeout Information; G

Record Drawings; G, A/E

1.3 RECORD DOCUMENTS

Maintain at the site the items listed below:

- a. Construction schedule and progress record
- b. Record drawings showing progress of work (see paragraph RECORD DRAWINGS below)
- c. Contract Work Plans
- d. Specifications
- e. Addenda
- f. Modifications to the Contract - Project Change Orders (PCOs)
- g. Contracting Officer's Directives
- h. Written reports of any significant Quality Assurance problems
- i. Daily work activity summary reports, including:
 - Field test records
 - Photographs
 - Videotape
 - Reports on any emergency response actions
 - Manifest documents and variance reports
 - Records of all site work
 - Chain-of-custody documents
 - Truckload tickets and shipping papers (manifests)
 - All laboratory analytical results
 - Soil screening measurements
 - All safety and accident incidents

- Reports on all spill incidents
- Air monitoring reports and data
- Other items as may be required by the Contracting Officer

1.3.1 Record Drawings

1.3.1.1 General

The Contractor will maintain as-built drawings during the construction period and will submit final record drawings at the completion of individual activities and geophysics. The Government through the A/E will provide to the Contractor the CAD (Computer-Aided Drafting) files consisting of compact (computer) disks or magnetic media of the drawing files in the appropriate CAD format (i.e. "Microstation", "Autocad", etc.) for the project. The Contractor is required to make prints or mylars from the CAD files and continuously maintain drawings to show current as-built conditions for the duration of the construction. Except for updates as indicated below, the Contractor may maintain as-built drawings by marking up drawings by hand or by CAD methods. Scanned drawings will not be acceptable. If the Government cannot provide CAD files for the project drawings, mylar (reproducible) drawings will be provided. The contractor will then be required to comply with all requirements indicated herein by the use of hand drafting.

1.3.1.2 Progress As-built Prints

During construction the Contractor is responsible for maintaining up to date one set of paper prints to show as-built construction conditions. These prints shall be kept current and available on the job site at all times. All changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accordingly and neatly recorded as they occur by means of details and notes. The as-built prints will be jointly inspected for accuracy and completeness by the Contracting Officer's Representative and a responsible representative of the Contractor prior to submission of each monthly pay estimate. Partial payment will be withheld (amount to be determined) if the monthly review of as-built drawings reveals inaccuracies or incompleteness of as-built conditions. Progress as-builts shall show the following information, but not limited thereto:

- a. The location and description of any utility lines, valves, or other installations of any kind within the construction area. The location includes dimensions to permanent features. Average depth below surface shall also be indicated. The location of all underground utility lines, valve boxes or other items shall be located using a minimum of two tie-point dimensions. All dimensions must be taken from permanent structures or points that will remain after the construction work is completed.
- b. The location and dimensions of any changes with the building and structure
- c. Correct grade or alignment of roads, structures or utilities if any changes were made from the contract plans.
- d. Correct elevations if changes were made in site grading
- e. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by

the Contractor including but not limited to fabricated, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

- f. The topography and grades of all drainage installed or affected as part of the project construction.
- g. All changes, which result from contract modifications.
- h. Where contract drawings or specifications allow options, only the option selected for construction shall be shown on the as-built prints.
- i. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler and irrigation systems, if applicable.
- j. All amendments to the contract drawings issued during the solicitation period shall be posted on the as-built drawings.

1.3.1.3 Hand Drafting

If mylars only are provided to the Contractor, they shall be updated using hand drafting. Only personnel proficient in the preparation of engineering drawings to standards satisfactory and acceptable to the Government shall be employed to modify the mylar reproduction drawings or prepare additional new drawings. All additions and corrections to the contract drawings shall be neat, clean and legible, and shall match the adjacent line work and/or lettering being annotated in type, density, size and style. All drafting work shall be done using the same medium (pencil, plastic lead or ink) that was employed on the original contract drawings and with graphic lead on paper base material. The title block to be used for any new as-built drawings shall be similar to that used on the original contract drawings.

1.3.1.4 Protection of Records

The Contractor shall be responsible for the protection and safety of mylars and CAD record until returned to the Contracting Officer. Any drawings damaged or lost by the Contractor shall be satisfactorily replaced by the Contractor at his expense.

1.3.1.5 50% As-Built Update

At the 50% point in construction of this project (as determined by progress payments) the Contractor will update the CAD files of the project drawings in the appropriate CAD program to show as-built conditions as above, and submit an updated computer disk and one set of prints to the Contracting Officer for approval. If mylars only are provided to the Contractor, they shall be updated at this stage using hand-drafting as specified herein, and the Contractor shall submit one set of prints to the Contracting Officer for approval. Any required corrections will be made by the Contractor before payment will be approved for this item. The Contractor must use the updated CAD record or mylar drawings to produce required prints.

1.3.1.6 Preliminary Record Drawing Submittal

At least thirty calendar (30) days before the anticipated date of final acceptance inspection the Contractor shall deliver two copies of progress prints showing final as-built conditions to the Contracting Officer for

review and approval. These prints shall correctly show all the features of the project as it has been constructed, adding such additional drawings as may be necessary. They shall be printed from the CAD files updated in the appropriate CAD program, or from updated mylars if mylars only were provided to the Contractor. Within ten days, the Government will provide the Contractor one set of prints indicating required corrections to the preliminary submittal. Contractor will correct and resubmit within 5 days.

Any required subsequent review and resubmission periods will each be accomplished within 5 days. Upon Government approval of the preliminary submittal, the Contractor will prepare final record drawings.

1.3.1.7 Record Drawing Submission

In the appropriate CAD program each drawing shall be marked with the words "RECORD DRAWING AS-BUILT" followed by the name of the Contractor in font which will print at least 3/16" high. All revisions to the original contract drawings will be dated in the revision block. All prints and mylars must be reproduced from the updated CAD files. If mylars only were provided to the Contractor, they shall be hand-lettered or stamped as indicated above, and revisions shown in revision block. A minimum of 5 calendar days before the anticipated date of final acceptance inspection of the project the Contractor shall deliver to the Contracting Officer:

- a. Three (3) CD's (ROM) of CAD files of Record Drawings.
- b. One (1) set of Mylar Record Drawings.
- c. One (1) copy of prints of Record Drawings.

Failure to make an acceptable submission of Record Drawings will delay the Final Acceptance Inspection for the project and shall be cause for withholding any payment due the Contractor under this contract.

1.3.1.8 Property

All paper prints, reproducible drawings and CAD files will become property of the Government upon final approval. Approval and acceptance of the final record drawings shall be accomplished before final payment is made to the Contractor.

1.3.1.9 Payment

No separate payment will be made for the as-built and record drawings or updating of CAD files required under this contract, and all costs in connection therewith shall be considered a subsidiary obligation of the Contractor.

1.3.1.10 Completion of Work

Upon completing the work under this contract, the Contractor shall furnish a complete set of all shop drawings as finally approved. These drawings shall show all changes and revisions made up to the time the equipment is completed and accepted.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 REMEDIAL CLOSEOUT PACKAGE

The Remedial Unit Closeout Package shall consist of certification of decontamination of the entire site, removal of temporary facilities, and submittal of a Remedial Action Report that summarizes all remedial activities and that includes the Remedial Unit Summary Reports.

Submit the following Remedial Unit Closeout Information for each remedial unit, within 30 days of Final Acceptance Certification for the remedial unit:

- a. Substantial Completion Notice (for each remedial unit)
- b. Final Acceptance Certification (for each remedial unit)
- c. Remedial Action Report (for each remedial package)
- d. Remedial Unit Summary Reports (for each remedial unit)
- e. Cluster Specific Summary Reports (for each cluster)

Submit the Remedial Unit Closeout Package that summarizes remedial activities at each remedial unit, for all work under this contract within 30 days of Final Acceptance Certification for the last remedial unit.

3.1.1 Final Decontamination

Decontaminate, without exception, all facilities, equipment, and materials prior to final removal from the site. This includes waste and material, transport vehicles, and all site equipment. Pay special attention to the removal of material on and within the tracks and sprockets of crawler equipment and the tires and axles of trucks and rubber mounted equipment.

Tools and items for which decontamination is difficult or impossible to verify shall remain on site, until completion of the work, for subsequent disposal at an approved disposal facility. Examples of such equipment or materials may include wire, rope, lumber, some personnel protective equipment, etc.

3.2 REMEDIAL UNIT CLOSEOUT

Remedial Unit Closeout Package shall consist of clearing the remedial unit, certifying that the work is complete, and submitting a Remedial Unit Summary Report that summarizes remedial activities and includes Cluster Specific Summary Reports.

3.2.1 Clearing the Remedial Unit

Remove and dispose of all waste such as excess construction material, wood, bituminous concrete, debris, and any other foreign material. Disconnect all temporary site facilities, utilities, and signs. Remove all Contractor constructed access roads and parking areas, unless otherwise needed for additional remedial units. Restore the site to conditions that existed prior to construction.

3.2.2 Administrative Provision

Prior to substantial completion of a remedial unit, the Contracting Officer will present a punch list of work items to be completed in accordance with the Contract Documents. When this punch list is substantially complete, submit written notice with a list of items to be completed or corrected,

and the estimated dates of the completion or correction. Should inspection by the Contracting Officer indicate that the work is not substantially complete, notification will be made in writing, listing observed deficiencies. Remedy the deficiencies and send a new written notice of substantial completion. This procedure shall continue until such time when the Contracting Officer is satisfied with such repairs and corrections. When the Contracting Officer finds the work to be substantially complete, he will prepare a Certification of Substantial Completion with a list of deficiencies which require timely correction in accordance with provisions of General Conditions.

3.2.3 Final Acceptance

Upon completion of work, submit to the Contracting Officer written notification that Contract Documents and approved plans have been reviewed, work has been inspected for compliance with Contract Documents and approved plans, work has been completed in accordance with Contract Documents and approved plans, deficiencies listed with Certificate of Substantial Completion have been corrected, and work is complete and ready for final inspection. Should the Contracting Officer find work incomplete, he will promptly provide written notification, listing observed deficiencies. Remedy the deficiencies and send a second request for certification of Final Completion. This procedure will continue until such time when the Contracting Officer is satisfied with such repairs and corrections. When the Contracting Officer finds work is complete, he will consider closeout submittals, and a Final Acceptance Certification will be issued. When the Final Acceptance Certification is received, submit the final invoice for final payment.

3.3 REMEDIAL ACTION REPORT

After successful completion of a remedial package, prepare a Remedial Action Report and submit it to the Contracting Officer. Remedial Action Report is a summary of Remedial Unit Summary Reports. The government will use the Remedial Action Report to document completion of a remedial package (contract) and indicate that the particular clusters have met cleanup objective as well as summary information for subsequent inclusion in the Superfund Site Close Out Report. Prepare the Remedial Action Report in accordance with EPA OSWER Directive 9320.2-09A-P. Include, as a minimum, the following essential elements in the Remedial Action Report:

- a. Summary of Remedial Activities
 - Demolition/Restoration Activities Performed
 - Total Volume of Soil Excavated
 - Total Volume of Soil Disposed Off-Site (by facility)
 - Total Volume of Backfill Placed
 - Chronology of Significant Events
 - Performance Standards and Construction Quality Control
 - Disposal Facilities Used
 - Summary of Project Costs
 - Observations and Lessons Learned
 - Contract Information
 - Site Surveys, Maps, and Plans
 - Final Inspection and Certification
 - Contract Information

-- End of Section --

SECTION 02212

HANDLING AND DISPOSAL OF DRUMMED AND HAZARDOUS MATERIALS

PART 1 GENERAL

1.1 DESCRIPTION

This section covers the Contractor's requirements for materials, equipment, and personnel associated with handling and disposal of buried or above-grade drummed and hazardous materials when encountered during demolition. No above-grade drums are currently identified. All activities conducted under this section shall be in accordance with the Contractor's Site Safety and Health Plan and Section 02220 DEMOLITION and shall meet the requirements of 29 CFR 1910 and 29 CFR 1926.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1910.120	Hazardous Waste Operations and Emergency Response
29 CFR 1926	Safety and Health Regulations for Construction
40 CFR 261	Identification and Listing of Hazardous Waste
49 CFR 173	Shippers - General Requirements for Shipments and Packagings

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA SW-846.3-3	(1999, Third Edition, Update III-A) Test Methods for Evaluating Solid Waste: Physical/Chemical Methods
EPA 600/2-86/012	Drum Handling Procedures at Hazardous Waste Sites

1.3 DEFINITIONS

1.3.1 Drummed Materials

For this project, drummed materials are defined as the contents of any non-empty drum (i.e., container) encountered during demolition or excavation. As defined by 40 CFR 261.7, a drum is empty if: (1) All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g., pouring, pumping, aspirating, and (2a) No more than 2.5 centimeters (one inch) of residue

remain on the bottom of the container or inner liner, or (2b) No more than 3 percent by weight of the total capacity of the container remains in the container or inner liner if the container is less than or equal to 100 gallons in size, or (2c) No more than 0.3 percent by weight of the total capacity of the container remains in the container or inner liner if the container is greater than 110 gallons in size.

- a. Empty or crushed drums and/or drum parts are not classified as drummed material.

1.3.2 Hazardous Materials

For this project, hazardous materials are defined as any drummed material for which analytical test results indicate the material exhibits hazardous waste characteristics as described in paragraph Hazardous Characterization Determination of this section.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Drummed and Hazardous Materials Handling Plan; G

The Contractor shall develop a Drummed and Hazardous Materials Handling Plan and submit it to the Contracting Officer for approval within 30 days of Contract Award.

SD-07 Certificates

Qualifications; G

The Contractor shall submit names, location, and phone numbers of properly licensed off-site disposal facilities to be used by the Contractor for the disposal of drummed hazardous material and drummed non-hazardous liquids.

Certificates of Disposal;

Shipping Documents and Packagings Certification;

Following disposal, the Contractor shall submit to the Contracting Officer shipping papers, receipt slips, and/or certificates for drummed material determined to be hazardous as defined herein.

SD-11 Closeout Submittals

Receipts

Receipts or bills of lading, as specified.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 HANDLING OF DRUMMED AND HAZARDOUS MATERIALS

3.1.1 Minimum Requirements

This subsection describes the minimum requirements for handling, sampling, staging, and disposal of drummed and hazardous materials to be followed by the Contractor. The Contractor's procedures shall be described in the Drummed and Hazardous Materials Handling Plan. Minimum requirements for drummed material sampling and analysis are specified in paragraph DRUM SAMPLING AND ANALYTICAL PROGRAM. The plan shall be submitted for approval no later than 30 days after the Notice to Proceed. The intent of this project is to optimize the material handling methodology to efficiently minimize costs of sampling and off-site disposal.

3.1.1.1 Drummed and Hazardous Materials Handling Plan

The Drummed and Hazardous Materials Handling Plan shall address, at a minimum:

- a. Methods and equipment proposed for removal, assessment, loading, and handling of drummed and hazardous materials should they be encountered.
- b. Storage provisions for drummed and hazardous materials including specified areas to be used as staging areas.
- c. Protocol for opening and sampling drummed material, which has been determined to undergo analytical testing.
- d. Material identification methods (e.g., labeling, marking containers) and procedures for identification and tracking.
- e. Procedures for consolidating (i.e., bulking) similar and compatible drummed materials for sampling and for disposal.
- f. Provisions for separation of incompatible drummed materials.
- g. Protocol for overpacking damaged or bulging drums.
- h. Construction methods for staging and storage areas.
- i. Plans for handling liquids from leaking drums.
- j. Special safety precautions. The Drummed and Hazardous Materials Handling Plan shall adhere to all relevant local, state, and federal regulations associated with drummed and hazardous materials handling and disposal.
- k. Manifesting procedures including applicable land ban requirements.

3.1.1.2 Drum Handling

If drummed material is encountered, the Contractor shall segregate the

drummed material from other on-site waste material. Prior to handling and removing the drummed material from the Work area, the Contractor shall visually assess the drummed material and its potential hazardous condition.

Drum conditions shall be assessed to determine if it is leaking, bulging, crushed, or empty. Crushed, empty, and/or skeletal parts of drums are excluded. In addition, signs of drums containing reactive waste shall be observed (e.g., bulging drum, specialty metal drum). For non-empty drums, the Contractor shall record any identification or markings on the drum. An information sheet shall be developed as part of the Contractor's Drummed and Hazardous Materials Handling Plan upon which the Contractor shall record information such as container type, size, condition, type of materials, and any identifying characteristics of the material. Leaking, damaged drums shall be overpacked or their contents transferred to new drums at the excavation area to minimize contamination due to transporting leaking drums. Drummed materials as defined in paragraph Drummed Materials, and not requiring special handling and shall be moved from the excavation area to the staging/sampling area. All Work shall proceed in a controlled manner so as to minimize the potential dangers associated with excavation and extraction of drummed materials. Excavation of drummed materials shall be conducted in accordance with OSHA Standard, 29 CFR 1910.120.

3.2 DRUM STAGING AREA

The Contractor shall construct a staging area. The Contractor's Drummed and Hazardous Materials Handling Plan shall provide construction details and location of the staging area for approval by the Engineer and Contracting Officer.

The staging area shall consist of a lined (i.e., polypropylene) area sloped to drain to a central collection sump connected to a storage tank having a minimum capacity of 50 gallons. The staging area subgrade shall be graded smooth and free of protruding objects that could puncture the liner. Water collected from the staging area shall be discharged at a permitted facility.

The staging area shall have the capacity to stage up to 10 individual drums. Individual drums shall be single stacked on pallets with identifying labels clearly visible.

The Contractor shall cover the area to minimize the amount of precipitation coming in contact with the drummed materials. The Contractor shall use only rubber tired equipment in this area. Drummed materials shall be staged such that cleaning, labeling, opening, sampling, bulking, and initial storage of materials may occur in a sampling portion of the area. The Contractor shall furnish the necessary monitoring, emergency, and material handling equipment for the staging area as required.

Drummed material determined to be hazardous shall be transferred to a storage portion of the area or their contents bulked into larger holding bins/tanks. The storage's portion of the area shall be used to manifest, label, mark, and placard drums or material designated for off-site disposal.

The Contractor shall submit for approval, as part of the Drummed and Hazardous Materials Handling Plan, a detailed description with drawings, if necessary, of the proposed location, construction, and covering procedures for the staging area.

After demolition activities are complete and the drummed materials are removed from the site, the staging area shall be dismantled and the

materials shall be disposed of at an off-site permitted disposal facility at no additional cost to the Contracting Officer.

3.3 DRUMS SAMPLING AND ANALYTICAL PROGRAM

3.3.1 General

All sampling of liquids, sludges, and/or solids from excavated drummed materials shall be performed by the Contractor. Sampling procedures shall be in accordance with procedures set forth in the USEPA document EPA 600/2-86/012 Drum Handling Procedures at Hazardous Waste Sites. The Contractor shall provide all sample containers and be responsible for sample collection, packing, preservation, transport, and analysis. The Contractor shall maintain field log documentation of all drum sampling activities and a chain of custody for the samples collected.

3.3.2 Sampling and Analytical Program Objectives

3.3.2.1 Drummed Material Segregation

The Contractor shall visually segregate drummed material as it is encountered during construction activities. Drummed material as defined in paragraph DEFINITIONS shall be segregated based on visual observations and air monitoring readings. The rationale shall be to segregate and stage similar drummed material together to more effectively sample the drummed material. The Contractor shall bulk similar drummed materials prior to representative sampling for analytical testing, to the extent possible for efficient and cost-effective sampling, analysis, and disposal.

3.3.2.2 Drummed Material Sampling

After segregating the drummed material, the primary concern of the Contractor shall be to safely sample the drummed material. Drum opening and sampling procedures shall be in accordance with OSHA Standard 29 CFR 1910.120(j). Personnel in the immediate vicinity shall be upwind of the drum being opened. The Contractor shall be responsible for collection of a representative sample of each phase of the drummed material. Each phase shall be an individual sample.

3.3.2.3 Sampling Objectives

The Contractor shall describe the sampling procedures and equipment to sample drummed liquids, sludges, and solids in the Drummed and Hazardous Materials Handling Plan. The objective of this plan shall be to characterize the drummed material as required to:

- a. Field screen drummed materials for staging using appropriate instrumentation and applicable field screening tests.
- b. Determine material compatibility for safe drum staging, segregation, bulking, or recontainerization.
- c. Sample and analyze drummed material for hazardous characteristics.
- d. Determine treatment and disposal requirements for drummed material exhibiting hazardous characteristics.
- e. Allow transportation of drummed material in accordance with regulatory requirements.
- f. Identify potential RCRA permitted disposal facilities.

3.3.3 Hazardous Characterization Determination

a. The Contractor shall use the following USEPA methods from EPA SW-846.3-3 for characterizing tank material samples or as necessary to satisfy off-site disposal facility requirements:

- (1) Ignitability: USEPA 1010.
- (2) Corrosivity: USEPA 9040/9045.
- (3) Reactivity:
 - 6.4.3.1 Cyanide: USEPA 9012.
 - 6.4.3.2 Sulfide: USEPA 9030.
- (4) Free Liquids: USEPA 9095.
- (5) Toxicity:

USEPA 1311-Toxicity Characteristic Leaching Procedure (TCLP) Preparation.

USEPA 8270C-TCLP Semivolatiles.
USEPA 8260B-TCLP Volatiles.
USEPA 8081A0-TCLP Pesticides.
USEPA 8082-TCLP PCBs.
USEPA 8151A-TCLP Herbicides.
USEPA 6010B, 7470A and 7471A-TCLP Metals.

(6) Compatibility: The purpose of compatibility testing is to determine which materials for off-site disposal (i.e., classified as exhibiting characteristics of hazardous waste as defined by 40 CFR 261 can be safely consolidated (i.e., bulked) for disposal purposes. The Contractor shall bulk materials to the extent possible based on the characterization results and in field bulking tests. The Contractor shall describe the procedures to be followed for bulking (i.e., compatibility testing) in the Storage Tank Handling Plan.

(7) Partial TCLP Parameter: Analytical testing of solid materials (e.g., testing for the inorganic fraction only) will be allowed if it is apparent from visual observations that the likelihood of the sample containing any TCLP organic parameters is minimal. For example, a sample collected from a tank containing sand or gravel would be tested only for TCLP inorganic parameters and the other hazardous characteristic parameters.

(8) The Analytical Program: Shall be structured to provide data in a time frame that will allow expedient removal, off-site transportation and disposal of drummed materials exhibiting hazardous characteristics. At a minimum, the Contractor's sampling and analytical program to be described in the Drummed and Hazardous Materials Handling Plan shall address:

Sample identification and tracking procedures.

Waste compatibility testing procedures, protocols and analytical parameters.

Waste segregation criteria.

Waste sample collection procedures and methodology.

Information necessary to complete waste disposal application requirements for off-site disposal facilities.

Schedule of all activities including typical sample analysis response times (RCRA and disposal characterization), assessment of treatment/disposal options, waste consolidation if appropriate, and off-site disposal.

3.3.3.1 Disposal Samples

The Contractor shall follow the analytical methods necessary to satisfy off-site disposal facility requirements.

3.2.6 Data Reporting

Written results of the hazardous characterization testing performed by the Contractor shall be submitted to the Contracting Officer within 21 calendar days of sampling and at least 14 days prior to transportation of tank material off-site. Written results of the compatibility testing shall be submitted to the Contracting Officer within 2 days of performing the compatibility testing and 14 days prior to transportation of the materials off-site. For materials which are determined to be Hazardous, the Contracting Officer will obtain provisional generator ID number for the site.

3.4 DISPOSAL OF DRUM MATERIALS

Results of the tests specified in Paragraph Hazardous Characterization Determination be used to determine if the drummed material exhibits characteristics of a hazardous waste as defined by 40 CFR 261.20.

3.4.1 Solid Drummed Material

Drummed material classified as hazardous shall be disposed of off-site in accordance with all local, state, and federal regulations. In addition, Contractor shall, to the extent possible, bulk compatible drummed materials classified for off-site disposal based on the characterization results and bench-scale compatibility tests. Solid drummed material that is determined to be not hazardous as defined herein shall be buried on-site at a location determined by Engineer or disposed off-site at an approved facility.

3.4.2 Liquid Drummed Material

Liquid drummed material classified as hazardous shall be disposed of off-site in accordance with all local, state, and federal regulations. In addition, Contractor shall, to the extent, possible bulk compatible drummed materials classified for off-site disposal based on the characterization results and bench-scale compatibility tests. Liquid drummed material that is determined to be not hazardous as defined herein shall be disposed off-site at an approved facility.

3.4.3 Off-Site Disposal

Drummed materials characterized as hazardous waste and drummed non-hazardous liquids to be disposed off-site shall be disposed in accordance with RCRA approved methods. Contractor is responsible for obtaining and furnishing the permits, royalties, taxes, equipment, materials, and labor required for sampling analysis, bulking, manifesting, loading, transportation, and disposal at a qualified facility of the drummed material that has been characterized as hazardous as defined herein. Shipping Documents and Packagings Certification including shipping papers, receipt slips, and/or certificates of disposal for drummed hazardous material and drummed non-hazardous liquids disposed off-site by the Contractor must be submitted to the Government's Field Engineer. All shipping shall meet the requirements of 49 CFR 173.

3.4.4 Minimizing Costs

The Contractor shall determine the method of disposal knowing that the intent of the Contracting Officer is to minimize cost of sampling and off-site disposal. The Contracting Officer reserves the right to direct revisions in the Contractor's disposal methodology.

SECTION 02220

DEMOLITION

PART 1 GENERAL

1.1 SCOPE OF WORK

Contractor shall provide all labor, materials, equipment and incidentals as shown, specified and required for demolition, removal and disposal work. Demolition includes structural concrete, foundations, walls, doors, windows, structural steel, metals, masonry, attachments, appurtenances, piping, electrical and mechanical equipment, paving, curbs, walks, fencing and similar existing facilities.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A10.6 (1990; R 1998) Safety Requirements for Demolition Operations

AIR-CONDITIONING AND REFRIGERATION INSTITUTE (ARI)

ARI Guideline K (2005) Containers for Recovered Fluorocarbon Refrigerants

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2003) Safety and Health Requirements Manual

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 61-SUBPART M National Emission Standard for Asbestos

40 CFR 82 Protection of Stratospheric Ozone

NEW JERSEY ADMINISTRATIVE CODE (NJAC)

NJAC 14.2 Board of Public Utilities Excavators Handbook

NEW JERSEY STATUTES ANNOTATED (NJSA)

NJSA 48:2-73 Underground Facility Protection Act

1.3 GENERAL REQUIREMENTS

Do not begin demolition until authorization is received from the Contracting Officer. Remove rubbish and debris from the project site; do not allow accumulations inside or outside the buildings. The work includes

demolition, salvage of identified items and materials, and removal of resulting rubbish and debris. Remove rubbish and debris from site daily, unless otherwise directed. Materials that cannot be removed daily shall be stored in areas specified by the Contracting Officer. In the interest of occupational safety and health, perform the work in accordance with EM 385-1-1, Section 23, Demolition, and other applicable Sections.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-07 Certificates

Demolition Plan; G

Notifications; G

Notification of Demolition and Renovation forms

SD-08 Statement

Pre-Demolition Survey;

SD-11 Closeout Submittals

Receipts

Receipts or bills of lading, as specified.

1.5 REGULATORY AND SAFETY REQUIREMENTS

Comply with federal, state, and local hauling and disposal regulations. In addition to the requirements of the "Contract Clauses," conform to the safety requirements contained in ANSI A10.6.

1.5.1 Notifications

1.5.1.1 General Requirements

Furnish timely notification of demolition projects to Federal, State, regional, and local authorities in accordance with 40 CFR 61-SUBPART M. Notify the Contracting Officer in writing 10 working days prior to the commencement of work in accordance with 40 CFR 61-SUBPART M.

1.6 DUST AND DEBRIS CONTROL

Prevent the spread of dust and debris and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution. Sweep pavements as often as necessary to control the spread of debris.

1.7 PROTECTION

1.7.1 Traffic Control Signs

Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades with flashing lights. Anchor barricades in a manner to prevent displacement. Notify the Contracting Officer prior to beginning such work. Contractor shall comply with all local ordinances for traffic control as required to complete the work.

1.7.2 Existing Work

Before beginning any demolition work, the Contractor shall survey the site and examine the drawings and specifications to determine the extent of the work. The Contractor shall take necessary precautions to avoid damage to existing items to remain in place or to be reused; any damaged items shall be repaired or replaced as approved by the Contracting Officer. The Contractor shall coordinate the work of this section with all other work and shall construct and maintain shoring, bracing, and supports as required. Do not overload structural elements or pavements to remain. Provide new supports and reinforcement for existing construction weakened by demolition or removal work. Repairs, reinforcement, or structural replacement must have Contracting Officer approval.

1.7.3 Utility Service

Maintain existing utilities indicated to stay in service in adjacent clusters and buildings and protect against damage during demolition operations.

1.7.4 Facilities

Protect electrical and mechanical services and utilities to remain in place following demolition. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities. Floors, roofs, walls, columns, pilasters, and other structural components that are designed and constructed to stand without lateral support or shoring, and are determined to be in stable condition, must remain standing without additional bracing, shoring, or lateral support until demolished, unless directed otherwise by the Contracting Officer. Ensure that no elements determined to be unstable are left unsupported and place and secure bracing, shoring, or lateral supports as may be required as a result of any cutting, removal, or demolition work performed under this contract.

1.7.5 Protection of Personnel

Before, during and after the demolition work the Contractor shall continuously evaluate the condition of the structure being demolished and adjacent structures and take immediate action to protect all personnel working in and around the demolition site. No area, section, or component of floors, roofs, walls, columns, pilasters, or other structural element will be allowed to be left standing without sufficient bracing, shoring, or lateral support to prevent collapse or failure while workmen remove debris or perform other work in the immediate area.

1.8 BURNING

The use of burning at the project site for the disposal of refuse and debris will not be permitted.

1.9 RELOCATIONS

Perform the removal and reinstallation of relocated items as indicated with workmen skilled in the trades involved. Items to be relocated which are damaged by the Contractor shall be repaired or replaced with new undamaged items as approved by the Contracting Officer.

1.10 REQUIRED DATA

The Demolition Plan shall include procedures for disposition of materials specified to be salvaged, coordination with other work in progress, a disconnection schedule of utility services, and a detailed description of methods and equipment to be used for each operation and of the sequence of operations. Provide procedures for safe conduct of the work in accordance with EM 385-1-1.

1.11 ENVIRONMENTAL PROTECTION

The work shall comply with the requirements of Section 01356A STORM WATER POLLUTION PREVENTION MEASURES, Section 01110 SUMMARY OF WORK, and Section 01351 SAFETY, HEALTH, AND EMERGENCY RESPONSE (HTRW/UST).

1.12 USE OF EXPLOSIVES

Use of explosives will not be permitted.

1.13 AVAILABILITY OF WORK AREAS

Areas in which the work is to be accomplished will be available in accordance with a schedule to be furnished to the Contractor by the Contracting Officer upon award of contract.

PART 2 PRODUCTS

2.1 FILL MATERIAL

Comply with excavating, backfilling, and compacting procedures for soils used as backfill material to fill basements, voids, depressions or excavations resulting from demolition of structures as specified in Section 02320 BACKFILL AND COMPACTION.

PART 3 EXECUTION

3.1 GENERAL

The storage (unless otherwise specified) or sale of items (unless otherwise specified such as steel) removed from the site will not be allowed.

The use of burning at the project site for the disposal of refuse or debris will not be permitted.

Blasting and use of explosives will not be permitted for any demolition work.

3.2 PRE DEMOLITION SURVEY

3.2.1 Asbestos

An asbestos materials survey was completed in the development of these documents. Any asbestos removal shall be conducted as specified in Section 13280A ASBESTOS HAZARD CONTROL ACTIVITIES, which contains the asbestos materials survey results. The Government does not guarantee the accuracy or completeness of the asbestos material survey; the Contractor shall be responsible for final delineation of asbestos.

3.3 DEMOLITION PLAN

Prepare a Demolition Plan that identifies all structures proposed for demolition based on pre-demolition surveys. Provide procedures for safe conduct of work, including demolition sequencing; procedures and methods to provide necessary supports; lateral bracing and shoring when required; careful removal and disposition of materials including proposed methods for material segregation, packaging and temporary storage; protection of property and vegetation which is to remain undisturbed; coordination with other work in progress; timely disconnection of utility services; protecting adjacent property, structures and personnel; and dust control measures. Include a detailed description of the methods and equipment to be used for each operation, and the sequence of operations in accordance with EM 385-1-1. Also include copies of all permits and licenses to perform demolition work. Submit the plan to the Contracting Officer 14 days prior to the start of demolition and no later than 30 days after the Notice to Proceed.

3.4 ASBESTOS ABATEMENT AND HAZARDOUS MATERIALS

Prior to demolition, remove and dispose of all hazardous materials in accordance with Section 02350 TRANSPORTATION AND DISPOSAL. Prior to demolition, conduct abatement for asbestos, if necessary, in accordance with Section 13280A ASBESTOS HAZARD CONTROL ACTIVITIES.

3.5 EXISTING FACILITIES TO BE REMOVED

3.5.1 Structures

a. A list of all existing buildings and structures to be removed is provided in Table 2, attached.

b. Remove existing structures indicated to be removed to the bottom of footing elevations. Interior walls, other than retaining walls and partitions, shall be removed to the bottom of footings. Basement slabs shall be removed. Sidewalks, curbs, gutters and light bases shall be removed as indicated. All excavation required as part of demolition shall be in accordance with Section 02310 EXCAVATION.

c. Demolish structures in a systematic manner from the top of the structure to the ground. For roofs containing Asbestos Containing Material, Contractor's activities will require removal of roofing, separation of materials, and disposal prior to demolition of the remaining structure. Complete demolition work above each tier or floor before the supporting members on the lower level are disturbed. Demolish concrete and masonry walls in small sections. Remove structural framing members and lower to ground by means of derricks, platforms hoists, or other suitable methods as approved by the

Contracting Officer.

d. Locate demolition equipment throughout the structure and remove materials so as to not impose excessive loads to supporting walls, floors, or framing.

e. Stockpile and stage demolition debris for sorting and disposal within the footprint of the demolished structure. Do not transport demolition material within the site unnecessarily.

3.5.2 Utilities and Related Equipment

Existing utilities may include but are not limited to: electric power, natural gas, telephone and communication cable, site water systems, building sanitary sewer, and drainage piping. Contact all local utility authorities prior to demolition activities and coordinate disconnection of all utilities in the demolition area, as necessary. Maintain existing utilities in service where possible. Protect utilities from damage, including freezing. Coordinate utility interruptions with the Contracting Officer and provide temporary service as necessary.

Comply with NJSA 48:2-73 as directed in the State of New Jersey Board of Public Utilities, Excavation Handbook. Call 1-800-272-1000 for a utility mark-out three full business days before beginning excavation. Comply with NJAC 14.2.

Utility contacts for known utilities in the work area will be provided by the Contracting Officer.

Where utilities are to be removed or terminated, remove existing utilities as indicated or uncovered by work and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the Contracting Officer. When utility lines are encountered that are not indicated on the drawings, the Contracting Officer shall be notified prior to further work in that area. Remove meters and related equipment and deliver to a location on the site in accordance with instructions of the Contracting Officer. If utility lines are encountered that are not shown on drawings, contact the Contracting Officer for further instructions.

3.5.3 Chain Link Fencing

Remove chain link fencing, gates and other related items scheduled for removal and transport to an approved disposal facility.

3.5.4 Paving and Slabs

Remove concrete and asphaltic concrete paving and slabs as indicated. Provide neat sawcuts at limits of pavement removal as indicated. Sawcut all pavement around the entire perimeter of each building and structure to be removed prior to beginning foundation removal.

3.5.5 Structural Steel

Remove and dispose of all structural steel offsite. Do not use flame cutting torches for dismantling.

3.5.6 Air Conditioning Equipment

Recover all refrigerants prior to removing air conditioning equipment and

dispose of in accordance with the paragraph entitled "Disposal of Ozone Depleting Substance (ODS)."

3.5.7 Mechanical Equipment, Piping, Valves, Ducts and Fixtures

Disconnect mechanical hardware at the nearest connection to existing services to remain, unless otherwise noted. Mechanical equipment and fixtures must be disconnected at fittings. Remove service valves attached to the unit.

3.5.8 Waste Segregation

Perform demolition to allow proper waste segregation of contaminated and uncontaminated materials.

3.6 CONCURRENT EARTH-MOVING OPERATIONS

Do not begin excavation, filling, and other earth-moving operations that are sequential to demolition work in areas occupied by structures to be demolished until all demolition in the area has been completed and debris removed. Holes, open basements and other hazardous openings shall be filled with dense graded aggregate. Following backfill and compaction of dense graded aggregate, bituminous pavement shall be provided as shown.

3.7 DISPOSITION OF MATERIAL

3.7.1 Title to Materials

The Government does not intend to salvage materials from the Site. All materials and equipment removed shall become the property of the Contractor and shall be removed from the Site. Title to materials resulting from demolition, and materials and equipment to be removed, is vested in the Contractor upon approval by the Contracting Officer of the Contractor's demolition and removal procedures, and authorization by the Contracting Officer to begin demolition. The Government will not be responsible for the condition or loss of, or damage to, such property after contract award. Materials and equipment shall not be viewed by prospective purchasers or sold on the site.

3.7.2 Disposal of Ozone Depleting Substance (ODS)

Class I and Class II ODS are defined in Section, 602(a) and (b), of The Clean Air Act. Prevent discharge of Class I and Class II ODS to the atmosphere. Place recovered ODS in cylinders meeting ARI Guideline K suitable for the type ODS (filled to no more than 80 percent capacity) and provide appropriate labeling. Recovered ODS shall be removed from Government property and dispose of in accordance with 40 CFR 82. Products, equipment and appliances containing ODS in a sealed, self-contained system (e.g. residential refrigerators and window air conditioners) shall be disposed of in accordance with 40 CFR 82.

3.7.2.1 Special Instructions

No more than one type of ODS is permitted in each container. A warning/hazardous label shall be applied to the containers in accordance with Department of Transportation regulations. All cylinders including but not limited to fire extinguishers, spheres, or canisters containing an ODS shall have a tag with the following information:

- a. Activity name and unit identification code
- b. Activity point of contact and phone number
- c. Type of ODS and pounds of ODS contained
- d. Date of shipment

3.7.3 Unsalvageable Material

Concrete, masonry, and other noncombustible material shall be removed from and disposed of offsite at a facility to be approved by the Contracting Officer. Submit name and address for approval. Combustible material shall be disposed of in accordance with Section 02350 TRANSPORTATION AND DISPOSAL

3.7.4 Special Waste Handling

The following items require special waste handling as indicated:

- a. Trash and debris in buildings
- b. Buried debris from buildings
- c. Buried metal debris
- d. Uncontaminated buried concrete debris in addition to building footings
- e. Buried underground storage tanks and contents
- f. Batteries shall be removed from the site and properly disposed of at a battery recycling facility.
- g. PCB contaminated lighting ballasts, PCB oil, and PCB transformers and capacitors shall be disposed of in accordance with Section 02350 TRANSPORTATION AND DISPOSAL.
- h. Lead based paint coated items shall be handled in a manner which does not jeopardize the health of Demolition Workers.
- i. Miscellaneous paints, solvents and like materials shall be collected in drums and disposed of off-site at a licensed facility.

3.8 CLEANUP

Debris and rubbish shall be removed from demolition areas. Debris shall be removed and transported in a manner that prevents spillage on streets or adjacent areas. Apply local regulations regarding hauling and disposal.

-- End of Section --

SECTION 02310

EXCAVATION

PART 1 GENERAL

1.1 SCOPE OF WORK

Contractor shall provide all labor, materials, equipment and incidentals required to perform all ancillary excavating and disposing of earth materials as shown, specified, and required for removal of buildings and structures. All temporary means needed to prevent discharge of sediment to water courses from dewatering systems or erosion are included. Excavation includes all materials regardless of type, character, composition, moisture, or condition thereof.

Work may include excavation of contaminated soils; excavation dewatering; removal of existing stumps, roots, utilities, pipes, rocks and boulders, concrete, or other materials; provision of temporary utilities; provision of temporary support structures; soil sampling and analysis; and related work. Contaminated material excavation includes field surveys, removal and disposal of existing foundation rubble and debris. Quantity of excavation shall be kept to a minimum.

Independent reviews will be completed by others. Independent reviews will include reviewing the Contractor's verification data, onsite surveys involving direct measurements, and sampling and sample analyses. The Contracting Officer and their representatives for independent reviews shall be provided with unrestricted access; access will be coordinated with the Contractor.

1.2 REFERENCES

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM-1110-2-2504 (1994) Engineering and Design - Design of Sheet Pile Walls)

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1926.650 Safety and Health Regulations for Construction

40 CFR 761 Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions

NEW JERSEY ADMINISTRATIVE CODE (NJAC)

NJAC 14.2 Board of Public Utilities Excavators Handbook

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP)

IGWSCC Impact to Groundwater Soil Cleanup Criteria

RDCSCC	Residential Direct Contact Soil Cleanup Criteria
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NRDCSCC	Non-Residential Direct Contact Soil Cleanup Criteria
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1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Excavation Support System Plan; G, A/E

Excavation Schedule; G

Dewatering Work Plan; G

Excavation and Material Handling Plan; G

Submit 15 days prior to starting work.

SD-03 Product Data

Notification of Opening of any Excavation

Notification of encountering rock in the project. Advance notice on the opening of excavation.

SD-06 Reports

Field Measurement Data; G

1.4 SURVEYS

Perform surveys in accordance with Section 01550 SURVEYING.

1.5 EXCAVATION SCHEDULE

Submit an Excavation Schedule and backfill operations schedule prior to commencing the work. Identify the sequence of areas to be excavated. This schedule shall be detailed and within the overall project schedule (see Section 01320 PROJECT SCHEDULE). Sequence the excavation such that areas already excavated are not recontaminated.

1.6 FIELD MEASUREMENT DATA

Submit collected Field Measurement Data to the Contracting Officer as part of a Closeout Package Report for each cluster. This Closeout Package Report shall contain data collection forms, maps, soil sample collection forms, soil sample analyses, surveying data, calibration sheets, quality control (QC) checklist cover sheets and Record Drawings. The Record Drawings shall be in accordance with the requirements of Section 01700 REMEDIAL PACKAGE CLOSEOUT AND RECORD DOCUMENTS. Blank master forms and base maps for each cluster are available from the Contracting Officer.

1.7 EXCAVATION AND MATERIAL HANDLING PLAN

Submit an Excavation and Material Handling Plan to the Contracting Officer for approval 14 days prior to the Pre-Work Conference and no later than 30 days after the Notice to Proceed. The Plan shall describe the methods and procedures for excavation of contaminated soil; debris decontamination procedures; procedures for working near, removing, and replacing utilities; and methods, materials, and procedures for backfilling, compacting and grading; and include design details for on-site stockpiling areas. Adverse conditions may be encountered during excavation operations and provisions should be made for such events.

The Excavation and Material Handling Plan shall address each of the major excavation areas separately, detailing the additional field sampling performed, work sequence, and volume estimates. Sections addressing specific excavation areas can be submitted for approval separately or together.

The Excavation and Material Handling Plan shall also address the stockpiling, storage and testing of soils intended for on-site reuse or disposal. Provide a description of sampling and analysis protocols, segregation methodologies and procedures, and Soil Characterization flow chart. Include a tabular site fill balance summary with a total of all excavated soils, contaminated and non contaminated quantities, and final disposition and location of soils removed from and reused on-site. For non-hazardous soils to be reused on-site, the concentrations of contaminants must be below the New Jersey Department of Environmental Protection Impact to Groundwater Soil Cleanup Criteria (IGWSCC). If soils with concentrations below the IGWSCC but above the Residential Direct Contact Soil Cleanup Criteria (RDCSCC) or Non-Residential Direct Contact Soil Cleanup Criteria (NRDCSCC) are reused on-site, the Contractor shall document the survey in the limits of the fill and provide this information to the Government; requirements for engineering controls when concentrations exceed NJDEP's NRDCSCC may be outlined by the Contracting Officer.

1.8 EXCAVATION SUPPORT SYSTEM PLAN

Prior to start of excavation operations and no later than 30 days after the Notice to Proceed, submit written plan to demonstrate compliance with OSHA Standard 29 CFR 1926.650. As a minimum, Excavation Support System plan shall include:

- a. Name of competent person.
- b. Excavation method(s) or protective system(s) to be used.
- c. Copies of "manufacturer's data" or other tabulated data if protective system(s) are designed on the basis of such data.

1.9 DEWATERING WORK PLAN

Submit a Dewatering Work Plan prior to construction and no later than 30 days after the Notice to Proceed. that includes methods for handling, storage, treatment, and disposal of excavation-derived water.

1.10 Blasting

Blasting will not be permitted.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 JOB CONDITIONS

3.1.1 Existing Utilities

Locate existing underground utilities in the areas of the Work using geophysical methods in accordance with Section 01110 SUMMARY OF WORK. If utilities are to remain in place, provide adequate means of protection during all operations. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult Contracting Officer immediately for directions as to procedure. Cooperate with utility owners and business tenants in keeping services and facilities in operation. Repair damaged utilities to satisfaction of utility owner. In general, service lines to individual buildings are shown based on the best information available; the Government does not guarantee the accuracy of the information above.

Excavate test pits as required to verify the location and the depth of all existing utilities prior to the start of remedial excavation.

Do not perform excavation or intrusive work until site utilities have been field located and until local and private utility owners have been contacted and have located and marked their utilities. Prior to any excavation work, utility clearances shall be documented and field verified by the Contractor. Prevent damaging or disturbing utilities during construction. Utilities encountered within the excavation limits shall be removed or temporarily relocated. All damages to existing utilities resulting from the work shall be repaired in accordance with the specifications and to the satisfaction of the utility owner. Coordinate physical removal of utilities to be performed by or according to local utility authorities.

Comply with New Jersey State's Underground Protection Act ("One Call Law" NJAC 14.2) as directed in the State of New Jersey Board of Public Utilities, Excavation Handbook. Call 1-800-272-1000 for a utility mark-out three full business days before beginning excavation. Comply with NJAC 14.2 (see State of New Jersey, Board of Public Utilities Excavator Handbook).

3.1.2 Roadways and Walks

Unless otherwise approved by the Contracting Officer, excavated material and materials of construction shall be so deposited, and the Work shall be so conducted, as to leave open and free for pedestrian traffic all crosswalks, and for vehicular traffic a roadway not less than ten feet in width. All hydrants, valves, fire alarm boxes, letter boxes, and other facilities which may require access during construction shall be kept accessible for use. During the progress of the Work, Contractor shall maintain such crosswalks, sidewalks, and roadways in satisfactory condition and the Work shall at all times be so conducted as to cause a minimum of inconvenience to public travel, and to permit safe and convenient access to private and public property along the line of the Work.

3.1.3 Clearing and Grubbing

Clear and grub trees, stumps, roots, brush or other vegetation as necessary for building and structural demolition and removal.

3.2 GENERAL EXCAVATION

The Contractor shall perform excavation of every type of material encountered to the lines, grades, and elevations indicated and as specified. The Contractor shall provide Notification of Opening of any Excavation to Contracting Officer sufficiently in advance to permit elevations and measurements of the undisturbed ground surface to be taken.

The contractor shall excavate to the limits and depths required for demolition and removal of slabs, foundations, storage tanks, piping, and other buried structures and facilities. Depth and extent of excavations shall be limited to the minimum dimensions required and not more than 0.5 feet beyond that specified, unless otherwise directed by the Contracting Officer.

3.2.1 Water Handling

3.2.1.1 Excavation Dewatering

Provide for the collection and disposal of surface and subsurface water encountered during construction. Surface water shall be diverted to prevent entry into the excavation areas. All surface and subsurface water that comes into contact with contaminated soil is considered impacted water and shall be collected, tested, and treated, as necessary. All water that has been in trenches and the decontamination pad is considered impacted water. The Contractor shall establish/construct storm drainage features at the earliest stages of site development, and throughout construction grade the construction area to direct surface water runoff away from the construction activity and contaminated areas and/or provide temporary ditches, swales, and other drainage features and equipment as required to maintain dry soils. Contractor shall make every effort and shall employ the necessary means and methods to prevent surface and subsurface water from coming into contact with contaminated soil and surfaces so as to minimize the generation of impacted water which must be treated prior to disposal. It is the responsibility of the Contractor to assess the soil and ground water conditions presented by the plans and specifications and to employ necessary measures to permit construction to proceed.

Groundwater flowing toward or into excavations shall be controlled to prevent sloughing of excavation slopes and walls, boils, uplift and heave in the excavation and to eliminate interference with orderly progress of construction. French drains, sumps, ditches or trenches will not be permitted within 3 feet of the foundation of any structure, except with specific written approval, and after specific contractual provisions for restoration of the foundation area have been made. Control measures shall be taken by the time the excavation reaches the water level in order to maintain the integrity of the in situ material. While the excavation is open, the water level shall be maintained at or below the bottom of the excavation at all times. Submit performance records weekly.

The Contractor shall minimize area of open excavation so as to limit the volume of dewatering required for the project. The maximum allowable excavation open at any time shall be jointly determined by the Contracting Officer and the Contractor. The Contractor shall not be permitted to extend the open area of excavation greater than the building foundation

footprints unless directed by the Contracting Officer.

3.2.1.2 Water Treatment

The Contractor shall have the option of either disposing to the local publicly owned treatment plant (POTW) or providing a mini-treatment system, subsequent to approval by the Contracting Officer. Treat and discharge water to the Bound Brook in accordance with the site NJPDES permit requirements and subsequent permit modifications. The Contractor shall utilize the most current approved Wastewater Treatment Design and Wastewater Treatment Operations and Maintenance Plan.

Discharge of water from the system will not be permitted without written approval from the Contracting Officer and all necessary permit equivalencies.

3.2.2 Trench Excavation Requirements

Trench walls more than 4 feet high shall be shored, cut back to a stable slope, or provided with equivalent means of protection for employees who may be exposed to moving ground or cave in. Vertical trench walls more than 4 feet high shall be shored. Trench walls which are cut back shall be excavated to at least the angle of repose of the soil. Special attention shall be given to slopes which may be adversely affected by weather or moisture content. The trench width and depth shall be controlled to the minimum dimension required for footing removal unless otherwise directed by the Contracting Officer.

3.2.3 Underground Utilities

Existing and abandoned utilities shall be excavated as per the Contract Drawings and the direction of the Contracting Officer. If the utility is to remain in service, decontaminate the utility as described in Decontamination of Subsurface Structures and as per the direction of the utility owner. If the utility is to be removed, disconnect the utility line from service as per the direction of the utility owner and excavate with the surrounding contaminated soil.

Movement of construction machinery and equipment over pipes and utilities during construction shall be at the Contractor's risk. Perform work adjacent to utilities as indicated in accordance with procedures outlined by utility company. Excavation made with power-driven equipment is not permitted within two feet of known utilities or subsurface construction. For work immediately adjacent to or for excavations exposing a utility or other buried obstruction, excavate by hand. Start hand excavation on each side of the indicated obstruction and continue until the obstruction is uncovered or until clearance for the new grade is assured. Support uncovered lines or other existing work affected by the contract excavation until approval for backfill is granted by the Contracting Officer. Report damage to utility lines or subsurface construction immediately to the Contracting Officer.

3.3 SHORING

3.3.1 General Requirements

The Contractor shall submit an Excavation Support Plan for approval 15 days prior to starting work. Submit drawings and calculations, certified by a registered professional engineer, describing the methods for shoring and

sheeting of excavations. Shoring, including sheet piling, shall be furnished and installed as necessary to protect workmen, banks, adjacent paving, structures, and utilities to remain in place. Shoring, bracing, and sheeting shall be removed as excavations are backfilled, in a manner to prevent caving.

The Contractor shall design, provide, and maintain the excavation support system as shown on the contract drawings and as required to complete the work. The Contractor shall provide all necessary sheeting, bracing, and sloping as required by federal, state, and local safety requirements; to support the sides of excavations; to prevent any movement which could diminish the width of the excavation below that necessary for proper construction to minimize soil cut volumes and groundwater infiltration; and to protect adjacent structures from undermining or other damage.

The design of shoring methods and sheet piles shall conform to the USACE engineering design manual EM-1110-2-2504 and other applicable standards and be stamped by an engineer licensed in the State of New Jersey. The design shall account for anticipated groundwater elevations indicated on the contract drawings, boiling conditions, etc. Design loads included shall account for live loads outside of the excavation area including HS-20 load on any adjacent streets.

3.3.2 Sheeting, Shoring and Bracing

Used material shall be in good condition, not damaged or excessively pitted. All steel or wood sheeting designated to remain in place shall be new. New or used sheeting may be used for temporary work.

All timber used for breast boards (lagging) shall be new or used, meeting the requirements for Douglas Fir Dense Construction grade with a bending strength not less than 1500 psi or Southern Pine No. 2 Dense.

All steel work for sheeting, shoring, bracing etc., shall be designed in accordance with the provisions of the "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings", of the AISC, except that field welding will be permitted.

Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.

Unless otherwise shown, specified, or directed, all materials used for temporary construction shall be removed when Work is completed. Such removal shall be made in a manner not injurious to the structure or its appearance or to adjacent Work.

The clearances and types of the temporary structures, insofar as they affect the character of the finished Work, and the design of sheeting to be left in place, will be subject to the approval of Engineer; but Contractor shall be responsible for the adequacy of all sheeting, shoring, bracing, etc.

Safe and satisfactory sheeting, shoring and bracing shall be the entire responsibility of Contractor.

All municipal, County, State, and Federal ordinances, codes, regulations and laws shall be observed.

3.3.3 Removal of Sheeting and Bracing

Remove sheeting and bracing from excavations, unless otherwise directed by the Contracting Officer, in writing. Removal shall be done so as to not cause injury to the Work. Removal shall be equal on both sides of excavation to ensure no unequal loads on pipe or structure.

3.4 CONTAMINATED MATERIAL REMOVAL

3.4.1 Excavation of Contaminated Material

Building materials and soils to be excavated shall be tested in-situ for PCB contamination. The Contractor shall excavate and remove all foundation walls and footings and place the excavated materials on prepared stockpile areas for subsequent verification sampling and analysis as specified below.

All soil materials clinging to the concrete surfaces shall be removed as required for disposal. The Contractor shall limit the length of trench which is opened at any time to a maximum of 200 linear feet. Schedule backfill materials deliveries and stockpile sufficient quantities in advance to backfill a minimum of one week's production. It is the Government's intent to reduce the quantity of contaminated soils produced as a result of demolition activities. The Contractor is to utilize equipment and techniques for excavation and removal of footings which minimize excavated soils generation. Sawcutting of all pavements adjacent to foundation walls to reduce lateral extent of disturbance, reduction of foundation wall segments to the minimum size practical in-situ and scraping and vibrating foundation segments in-place prior to removal are some of the methods which shall be employed to accomplish this goal. The Contractor's Excavation Plan shall be prepared to facilitate excavated soil volume minimization.

3.4.2 Excavated Material Setback

Place excavated and stockpiled materials and equipment at a safe distance from the edge of the excavation to prevent excessive loading on the face of the excavation.

3.4.3 Temporary Barricades

Place barricades around the excavation in such a manner to alert personnel to the danger and prevent them from falling into the excavation if the excavation must be left open during periods when the work site is unoccupied.

3.5 CONTAMINATED MATERIAL STORAGE

The requirements of TSCA regulations in 40 CFR 761.65(a)(9) shall take precedence over any specified requirements below. Place material in temporary storage immediately after excavation. Storage units shall be in good condition and constructed of materials that are compatible with the material or liquid to be stored. If multiple storage units are required, clearly label each unit with an identification number. Keep a written log to track the source of contaminated material in each temporary storage unit.

3.5.1 Stockpiles

Construct stockpiles to isolate stored contaminated material from the environment. Locations of stockpiles shall be included as part of the Contractor's Excavation and Material Handling Plan. Construct stockpiles

to include the following or equal:

- a. A chemically-resistant 30 millimeter polyethylene sheet on the bottom suitable for HTRW or other suitable staging pad. The ground service on which the 30 millimeter polyethylene sheet is to be placed shall be free of objects that could damage the membrane. Existing grade of area selected for stockpile area shall be sufficient such as to facilitate storm water control and collection.
- b. 30 millimeter polyethylene cover to prevent precipitation from entering the stockpile and dust from leaving the stockpile. The cover material shall be anchored to prevent it from being removed by wind.
- c. Berms of sufficient height surrounding the stockpile to prevent runoff of liquid and sediment. Vehicle access points shall also be bermed. Berms shall be covered with the stockpile polyethylene cover.
- d. Store, remove, and dispose of liquid that collects in the stockpile.

3.5.2 Roll-Off Units

To provide flexibility, roll-off units may be used to temporarily store contaminated material. Water-tight roll-off units used to temporarily store contaminated material shall have an impermeable cover placed over the units to prevent precipitation from contacting the stored material and dust from leaving. Remove and store liquid that collects inside the units in accordance with paragraph Liquid Storage.

3.6 SUBSURFACE STRUCTURES

3.6.1 Excavation of Subsurface Structures

The Contractor is notified that the site soils contain PCB and other organic and inorganic contamination. A separate program is scheduled to delineate the extent of that contamination. Initial Government data suggests that certain soil areas adjacent to the buildings scheduled for demolition may be contaminated. Accordingly, the Contractor shall be prepared to handle both contaminated and non-contaminated soils while removing below-grade building components and other debris. As additional soil contamination data is obtained by the Government, the Government will provide that data to the Contractor. Subsurface structures have not been sampled by the Government; the Contractor shall be responsible for determining chemical content of structures to be removed.

Building foundations and other subsurface anomalies that are encountered within the limits of excavation shall be removed. The Contractor shall determine which is more economical; disposal of the foundations and anomalies with surrounding soils with-out additional testing or segregation and sampling in accordance with Section 01450A CHEMICAL DATA QUALITY CONTROL. Final disposal shall be as approved by the Contracting Officer.

If segregation and sampling is selected, contaminated material shall be segregated from any non-contaminated materials and decontaminated as per Decontamination of Subsurface Structures paragraph and 40 CFR 761.79. Conduct Building and Debris Material Surveying and Sampling as specified in

Section 01450A CHEMICAL DATA QUALITY CONTROL. If the building material can be decontaminated, dispose of C&D waste as in Section 02350 TRANSPORTATION AND DISPOSAL. If the building materials cannot be decontaminated (i.e. the building material itself is contaminated), then dispose of the building material in the same manner as the surrounding soils. Any decontamination activities that are performed must be done in accordance with 40 CFR 761.79.

3.6.2 Excavation of Underground Storage Tanks

Underground Storage Tanks (USTs) encountered in the excavation shall be reported immediately to the Contracting Officer. The Contracting Officer shall determine if encountered USTs are to be remediated. Storage tank removal shall be in accordance with Section 02650 STORAGE TANK REMOVAL.

3.6.3 Decontamination of Subsurface Structures

Structures and utilities that are determined to be contaminated shall undergo decontamination in an attempt to meet the requirements for disposal as uncontaminated material. Decontamination procedures as described in Section 13285 REMOVAL AND DISPOSAL OF PCB CONTAMINATED SOILS AND CONCRETE shall be used. The Contracting Officer will inspect the surfaces prior to sampling to ensure adhering soil has been removed to the greatest extent practical.

-- End of Section --

SECTION 02320

BACKFILL AND COMPACTION

PART 1 GENERAL

1.1 SCOPE OF WORK

Contractor shall provide all labor, materials, equipment, and incidentals to furnish, place, and compact all backfill, fill, and other materials required for structures, pipelines, roads, and site restoration, and to provide finish grades as shown, specified and ordered.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
(AASHTO)

AASHTO T 180	(2001) Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and an 457-mm (18-in) Drop
AASHTO T 224	(2001) Correction for Coarse Particles in the Soil Compaction Test
AASHTO T 90	Standard Method of Test for Determining the Plastic Limit and Plasticity Index of Soils

ASTM INTERNATIONAL (ASTM)

ASTM C 143	(1998) Slump of Hydraulic Cement Concrete
ASTM D 1556	(2000) Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 1557	(2002e1) Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/cu. ft. (2,700 kN-m/cu.m.))
ASTM D 2487	(2000) Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 2922	(2004) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 3017	(2004) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
ASTM D 422	(1963; R 2002) Particle-Size Analysis of Soils

ASTM D 4832	(2002) Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders
ASTM D 6024	(2002) Standard Test Method for Ball Drop on Controlled Low Strength Material (CLSM) to Determine Suitability for Load Application

NEW JERSEY ADMINISTRATIVE CODE (NJAC)

NJAC 7:26E	Technical Requirements for Site Remediation
NJAC 7:26D	(1992) Cleanup Standards for Contaminated Sites (proposed rule)
NJAC 7:28-12	Soil Remediation Standards for Radioactive Materials

NEW JERSEY DEPARTMENT OF TRANSPORTATION (NJDOT)

NJDOT 901.04	Aggregates - Broken Stone
NJDOT 901.05	Aggregates - Washed Gravel
NJDOT 901.08	Aggregates - Dense-Graded Aggregate

1.3 MEASUREMENT

Not Used

1.4 PAYMENT

Not Used

1.5 DEFINITIONS

1.5.1 Satisfactory Materials

Soils classified by ASTM D 2487 as GW, GP, GM, GP-GM, GW-GM, SW, SP, SM, SC, CL, ML, SW-SM, SW-SC, SP-SM, and SP-SC; free of rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter. Backfill material shall be free of organic material, recycled material, broken concrete, masonry, rubble, asphalt pavement, frozen materials, rubbish, other manmade fills, trash, refuse, backfills from previous construction, or radiologically or chemically contaminated materials exceeding the limits indicated in Section 01450A CHEMICAL DATA QUALITY CONTROL. Soils shall be certified clean fill, the certification shall be submitted in the Excavation and Material Handling Plan in accordance with Section 02310 EXCAVATION. On-site soils to be reused as backfill shall also comply with the New Jersey Department of Environmental Protection Requirements as discussed in the Excavation and Material Handling Plan.

1.5.2 Unsatisfactory Materials

Uncontaminated materials which do not comply with the requirements for satisfactory materials are unsatisfactory. Unsatisfactory materials also

include man-made fills; trash; refuse; backfills from previous construction; and material classified as satisfactory which contains root and other organic matter or frozen material.

1.5.3 Degree of Compaction

Degree of compaction required, except as noted in the second sentence, is expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D 1557 abbreviated as a percent of laboratory maximum density. Since ASTM D 1557 applies only to soils that have 30 percent or less by weight of their particles retained on the 3/4 inch sieve, the degree of compaction for material having more than 30 percent by weight of their particles retained on the 3/4 inch sieve shall be expressed as a percentage of the maximum density in accordance with AASHTO T 180 Method D and corrected with AASHTO T 224. To maintain the same percentage of coarse material, the "remove and replace" procedure as described in the NOTE 8 in Paragraph 7.2 of AASHTO T 180 shall be used.

1.5.4 Topsoil

Material suitable for topsoil obtained from offsite areas is defined as: Natural, friable soil capable of supporting vegetative growth.

1.5.5 Hard/Unyielding Materials

Weathered rock, dense consolidated deposits, or conglomerate materials which are not included in the definition of "rock" with stones greater than 30 inches in any dimension or as defined by the pipe manufacturer, whichever is smaller. These materials usually require the use of heavy excavation equipment, ripper teeth, or jack hammers for removal.

1.5.6 Unstable Material

Unstable material shall consist of materials too wet to properly support the utility pipe, conduit, or appurtenant structure.

1.6 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Proposed source of borrow material.

SD-06 Reports

Testing; G, A/E

Borrow Site Testing; G, A/E

Off-Site Soils Chemical Testing; G, A/E

Within 24 hours of conclusion of tests, 6 copies of test results, including calibration curves and results of calibration tests. Results of testing at the borrow site.

SD-07 Certificates

Commercial Testing Laboratory Qualifications

Qualifications of the commercial testing laboratory or Contractor's testing facilities.

PART 2 PRODUCTS

2.1 REQUIREMENTS FOR OFF-SITE SOILS

Off-site soils brought in for use as backfill and topsoil shall meet the NJDEP requirements of NJAC 7:26E-6.4 and NJAC 7:26D with regard to condition and quality to ensure that the materials do not contain contaminants in concentrations which exceed NJDEP commercial direct contact and impact to groundwater criteria. Sample potential backfill materials at each source for radiological and chemical contaminants in accordance with Section 01450A CHEMICAL DATA QUALITY CONTROL. The contractor shall submit results from Off-Site Soils Chemical Testing. Testing of backfill shall also demonstrate that the same is free of radiological contamination and/or above site backgrounds in accordance with NJAC 7:28-12. Provide a written backfill material certification/source for all backfill materials proposed to be used on site including a written historical summary of the site the fill materials are coming from. This includes but is not limited to previous uses of the site, violations, and whether the site was previously an Environmental Responsibility Act/Industrial Recovery Site. Material shall not be brought on site until test results have been evaluated and the soils approved by the Contracting Officer.

2.2 SUBBASE COURSE

Subbase material shall generally be used for all backfill on-site including beneath all paved areas unless excavated materials are determined to be suitable for reuse on-site. Subbase material shall be sound and will be accepted on the basis of a magnesium sulfate soundness loss after 4 cycles of 20 percent or less. Subbase material shall consist of stone, sand, and gravel or blends of these materials. Dense graded aggregate conforming to NJDOT 901.08, broken stone conforming to NJDOT 901.04, and crushed gravel conforming to NJDOT 901.05. Blast furnace slag shall not be used. The moisture content of the dense graded aggregate shall be 4 to 8% immediately prior to placement based on dry weight. The dense graded aggregate shall have the following gradation:

Sieve Size	Percent Passing by Weight
1.5 inch	100
3/4 inch	55 to 90
No. 4	25 to 60
No. 50	5 to 25
No. 200	3 to 12

When tested according to AASHTO T 90, the portion passing the No. 40 sieve shall be non-plastic. Recycled concrete aggregate may not be used. RAP produced dense aggregate may not be used. Material shall also meet the other requirements of satisfactory materials as defined in paragraph SATISFACTORY MATERIALS.

2.3 CONTROLLED LOW STRENGTH MATERIAL

If requested by Contracting Officer, provide low controlled low strength backfill for elimination of voids as specified below.

The controlled low strength backfill shall be composed of cement, fly ash, foundry sand, and water.

Material supplier shall provide certification that material is in compliance with NJDOT requirements. Mix shall attain a minimum compressive strength of 40 psi to 160 psi at 28 days.

Controlled Low Strength Material shall be batched and premixed by an approved producer, dispensed from ready-mix trucks, and placed using approved methods and equipment.

Controlled Low Strength Material shall be placed so as to completely fill the space to receive it with no trapped air pockets or other voids. Positive means of allowing air to escape shall be provided where necessary. Where placed against and around existing structures, lift heights shall be limited so as to not overload the structure. Lift height shall be approved by the Contracting Officer.

Where Controlled Low Strength Material is placed around piping and other elements subject to floating within the fill, positive means shall be taken to provide temporary balancing loads to prevent uplift or fill lift height shall be limited to prevent uplift.

Controlled Low Strength Material shall be placed in the locations and to the limits shown and specified. At Contractor's option Controlled Low Strength Material may be substituted for other specified backfill materials at no additional cost to Contracting Officer. Proposed locations for substitution of Controlled Low Strength Material shall be approved in writing by Contracting Officer prior to placement. Locations where Controlled Low Strength Material is to be placed include but are not necessarily limited to:

- a. For filling all subsurface chambers, vaults and voids not easily accessible for placement and compaction of dense graded aggregate.
- b. For filling all voids arising from demolition or utility removal to within four feet of finished grade where placement and compaction of previously excavated soil materials is impractical.

Field Quality Control Testing: The Contractor shall retain the services of an approved laboratory to conduct field quality control testing of Controlled Low Strength Material. Testing shall consist of the following:

- a. Compressive Strength Testing: Each test shall consist of preparing and testing sufficient specimens to establish compressive strength of the material at 56 days. Obtain specimens and perform testing in accordance with the requirements of ASTM D 4832. Conduct one test for each 500 cubic yards of Controlled Low Strength Material placed or fraction thereof.
- b. Suitability for load application: Application of loads or placement of other fill materials or concrete on top of Controlled Low Strength Material shall not occur until the surface is determined to be suitable for loading in accordance with the requirements of ASTM D 6024. One test shall be conducted for each 150 square yards of Controlled Low Strength Material or fraction

thereof.

- c. Additional Testing: Determine yield, cement content, and air content in accordance with the requirements of ASTM C 143, and record ambient and material temperatures for each sample from which compressive strength specimens are taken.

PART 3 EXECUTION

3.1 GENERAL

Backfill materials shall come from an approved source.

3.2 GROUND SURFACE PREPARATION

3.2.1 General Requirements

Unsatisfactory material in surfaces to receive fill or in excavated areas shall be removed and replaced with satisfactory materials as directed by the Contracting Officer. For areas with steep slopes, the surface shall be scarified to a depth of 6 inches before the fill is started. Sloped surfaces steeper than 1 vertical to 4 horizontal shall be plowed, stepped, benched, or broken up so that the fill material will bond with the existing material. When subgrades are less than the specified density, the ground surface shall be broken up to a minimum depth of 6 inches, pulverized, and compacted to the specified density. When the subgrade is part fill and part excavation or natural ground, the excavated or natural ground portion shall be scarified to a depth of 12 inches and compacted as specified for the adjacent fill.

3.2.2 Frozen Material

Material shall not be placed on surfaces that are muddy, frozen, or contain frost. Frozen material shall not be placed in excavations nor shall clean fill be placed upon frozen material. Compaction shall be accomplished by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, or other approved equipment well suited to the soil being compacted. Material shall be moistened or aerated as necessary to provide the moisture content that will readily facilitate obtaining the specified compaction with the equipment used. Minimum subgrade density shall be as specified in paragraph TESTING.

3.3 BACKFILLING

Furnish, place, and compact all backfill materials following foundation and slab removal for grading, pavement subgrades and other areas as shown and specified. Backfill shall be placed to the lines and grades shown. No backfill shall be placed without prior approval from the Contracting Officer. Backfill excavations as promptly as work permits but not before acceptance by the Contracting Officer of construction below finished grade, including all inspections and testing. The lift thickness and compaction moisture content range given herein is approximate. These values shall be finally determined from the laboratory test results on the fill materials. Compaction requirements for backfill materials shall also conform to the applicable portions of paragraph SUBGRADE PREPARATION and COMPACTION. Place fill in 8 inches (max) lifts prior to compaction except when hand-operated compactors are used, in which case maximum uncompacted lift thickness shall be 6 inches.

All fill must be wetted and thoroughly mixed to achieve optimum moisture

content.

Natural undisturbed soils or compacted soil subsequently disturbed or removed by construction operations shall be replaced with materials compacted as specified above.

3.3.1 Trench Backfill

Trenches shall be backfilled to blend with existing adjacent site grades, and will be sloped at the required 1.5 percent in areas to receive asphalt overlay as shown. The trench shall not be backfilled until all specified tests are performed.

3.4 COMPACTION

3.4.1 General

Compaction shall be accomplished by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, vibrating compactors, or other approved equipment. Compact soil and subgrade to not less than the following percentages of maximum dry unit weight and optimum moisture according to ASTM D 1557:

- a. Foundation and slab removal areas near and under pavements, compact each layer of backfill to 95 percent;
- b. Plus or minus 2.5 percent of optimum moisture.

3.5 SUBGRADE PREPARATION

Subgrade shall be proof-rolled with a minimum 10 ton roller to the satisfaction of the Contracting Officer prior to installation of geotextile. The surface underlying the geotextile shall be smooth and free of ruts or protrusions which could damage the geotextile.

3.6 FINISHING

3.6.1 Grading Around Structures

Areas within 5 feet outside of each building and structure line shall be constructed true-to-grade, shaped to drain, and shall be maintained free of trash and debris until final inspection has been completed and the work has been accepted.

3.7 TESTING

Testing shall be performed by an approved commercial testing laboratory or by the Contractor subject to approval. The Contractor shall submit the Commercial Testing Laboratory Qualifications if a commercial testing laboratory will be used. If the Contractor elects to establish testing facilities, no work requiring testing will be permitted until the Contractor's facilities have been inspected and approved by the Contracting Officer. Field in-place density shall be determined in accordance with ASTM D 2922. When ASTM D 2922 is used, the calibration curves shall be checked and adjusted using only the sand cone method as described in ASTM D 1556. ASTM D 2922 results in a wet unit weight of soil and when using this method ASTM D 3017 shall be used to determine the moisture content of the soil. The calibration curves furnished with the moisture gauges shall also be checked along with density calibration checks as

described in ASTM D 3017; the calibration checks of both the density and moisture gauges shall be made at the beginning of a job on each different type of material encountered and at intervals as directed by the Contracting Officer. When test results indicate, as determined by the Contracting Officer, that compaction is not as specified, the material shall be removed, replaced and recompacted to meet specification requirements. Tests on recompacted areas shall be performed to determine conformance with specification requirements. Inspections and test results shall be certified by a registered professional civil engineer. These certifications shall state that the tests and observations were performed by or under the direct supervision of the engineer and that the results are representative of the materials or conditions being certified by the tests. The following number of tests, if performed at the appropriate time, will be the minimum acceptable for each type operation.

3.7.1 Fill and Backfill Material Gradation

One test per 5,000 cubic yards stockpiled or in-place source material, whenever a change of material occurs, or at the direction of Contracting Officer. Gradation of fill and backfill material shall be determined in accordance with ASTM D 422.

3.7.2 In-Place Densities

- a. One test per 5,000 square feet or fraction thereof, of each 6-inch lift of fill, for subbase backfill layer beneath proposed bituminous pavement, compacted by other than hand-operated machines (no less than one sample per lift).
- b. One test per each 6-inch lift, for each foundation wall backfilled following foundation removal.

3.7.3 Moisture Contents

In the stockpile, excavation, or borrow areas, a minimum of two tests per day per type of material or source of material being placed during stable weather conditions shall be performed. During unstable weather, tests shall be made as dictated by local conditions and approved by the Contracting Officer. The Contractor shall submit all Borrow Site Testing results.

3.7.4 Optimum Moisture and Laboratory Maximum Density

Tests shall be made for each type material or source of material including borrow material to determine the optimum moisture and laboratory maximum density values in accordance with ASTM D 1557. One representative test per 5,000 cubic yards of fill and backfill, when any change in material occurs which may affect the optimum moisture content or laboratory maximum density, or as directed by the Contracting Officer.

3.7.5 Tolerance Tests for Subgrades

Continuous checks on the degree of finish specified in paragraph SUBGRADE PREPARATION shall be made during construction of the subgrades.

-- End of Section --

SECTION 02350

TRANSPORTATION AND DISPOSAL

PART 1 GENERAL

1.1 SCOPE OF WORK

Contractor shall provide all labor, materials, tools, and equipment to transport and dispose Hazardous and Toxic Waste (HT) materials. Included are all plans, manifests, record keeping, and any other supporting documentation necessary for shipment and disposal of HT materials.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA OSWER Directive 9834.11	Close Out Procedures for National Priorities List Sites
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U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 61	National Emission Standards for Hazardous Air Pollutants
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 263	Standards Applicable to Transporters of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 300	National Oil and Hazardous Substances Pollution Contingency Plan
40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
49 CFR 107	Hazardous Materials Program Procedures
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements

49 CFR 173	Shippers - General Requirements for Shipments and Packagings
49 CFR 178	Specifications for Packagings
ASTM INTERNATIONAL (ASTM)	
ASTM D 1117	(2001) Evaluating Nonwoven Fabrics
NEW JERSEY ADMINISTRATIVE CODE (NJAC)	
NJAC 7:26-1	Requirements for the management, transportation and disposal of asbestos containing material (ACM)
UNITED STATES CODE (USC)	
10 USC 2692	Title 10 United States Code 2692 Storage, treatment, and disposal of non-defense toxic and hazardous materials
15 USC 2601 et seq.	Title 15 United States Code 2601 Toxic Substances Control Act
42 USC 6901	Title 42 United States Code 6901 Solid Waste Disposal/Resource Conservation and Recovery Act and Major Amendments
42 USC 9601	Title 42 United States Code 9601 Comprehensive environmental Response, Compensation and Liability Act (CERCLA or Superfund)
49 USC 1801	Title 49 United States Code 1801 Hazardous Materials Transportation Act

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Waste Management Plan and Addendum; G, A/E

Prior to start of work and no later than 30 days after the Notice to Proceed, the Contractor shall develop a Waste Management Plan. The Waste Management Plan shall detail the manner in which all material/wastes shall be managed both on and off site for the remediation activities. This plan shall include the relevant requirements for handling, transportation, storing, treatment and/or disposal of all nonhazardous and hazardous materials and wastes as required by the applicable laws and regulations. Contractor shall prepare a cluster-specific addendum to the approved Waste Management Plan for each building or cluster to be remediated.

Security Plan for Hazardous Materials Shipments; G

Traffic Control Plan; G

Notices of Non-Compliance and Notices of Violation

Notices of non-compliance or notices of violation by a federal, state, or local regulatory agency issued to the Contractor in relation to any work performed under this contract. Provide copies of such notices to the Contracting Officer. Also furnish all relevant documents regarding the incident and any information requested by the Contracting Officer, coordinate its response to the notice with the Contracting Officer prior to submission to the notifying authority. Also furnish a copy to the Contracting Officer of all documents submitted to the regulatory authority, including the final reply to the notice, and all other materials, until the matter is resolved.

Hazardous Waste Manifest; G

EPA Form 8700-12, Notification of Hazardous Waste Activity; G

SD-06 Reports

Hazardous Waste Manifest Annual and/or Biennial Reports

State Reporting Requirements; G

Transportation and Disposal Tracking Form

Discrepancy Reports

Exception Reports

Toxic Substance Control Act PCB Reporting Requirements; G

Final Disposal Report; G

SD-07 Certificates

Qualifications; G

Regulatory specialist and transportation and disposal coordinator; G

Off-Site Policy Compliance Certification

A letter certifying that USEPA Region 2 considers the facilities to be used for all off-site disposal to be acceptable in accordance with the Off-Site policy in 40 CFR 300.440. This certification shall be provided for wastes from Resource Conservation and Recovery Act (RCRA), 42 USC 6901 et seq., sites as well as from Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 42 USC 9601 et seq., responses. See Attachment A, Sample Certification, at the end of this section.

Certificates of Disposal

Shipping Documents and Packagings Certification

The Complete Manifest Package consists of, at a minimum, all hazardous waste manifests, PCB manifests, hazardous material shipping papers, waste profile sheets, the land disposal restriction notification and certification forms, and all other supporting documentation. Supporting documentation shall include waste disposal history, all analytical results, Material Safety Data Sheets available, and any other information received in identifying the proper waste code. The Contractor shall also include as part of the supporting documentation, the specific type of inner and outer packaging, markings, labeling, and placards offered to the transporter.

1.4 QUALIFICATIONS

1.4.1 Regulatory Specialist and Transportation and Disposal Coordinator

Designate, by position and title, one person to act as the Regulatory Specialist and Transportation and Disposal Coordinator (TDC) for this contract. The TDC:

- shall have a minimum of three (3) years working experience in federal, state, and local laws and regulations, and guidance associated with HTRW investigations, studies, designs, and remediations;

- shall have the capability and experience to identify all required permits;

- shall have specialized training in Hazardous Materials Transportation;

- shall meet the requirements for DOT certification;

- shall serve as the single point of contact for all environmental regulatory matters;

- shall have overall responsibility for total environmental compliance at the site including accurate identification and classification of hazardous waste and hazardous materials; determination of proper shipping names; identification of marking, labeling, packaging and placarding requirements; completion of waste profiles, hazardous waste manifests, asbestos waste shipment records, PCB manifests, bills of lading, exception and discrepancy reports; and all other environmental documentation; and,

1.4.2 Training

The Contractor's employees transporting hazardous materials or preparing hazardous materials for transportation shall be trained, tested, and certified in accordance with 49 CFR 172.

1.4.3 Certification

The Contractor and/or subcontractors transporting hazardous materials shall possess a current certificate of registration issued by the Research and Special Programs Administration (RSPA), U.S. Department of Transportation, when required by 49 CFR 107, Subpart G.

Submit an Off-Site Policy Compliance Certification letter certifying that

EPA considers the facilities to be used for all off-site disposal to be acceptable in accordance with the Off-Site policy in 40 CFR 300.440. This certification shall be provided for wastes from Resource Conservation and Recovery Act (RCRA), 42 USC 6901 et seq., sites as well as from Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 42 USC 9601 et seq., responses. See Attachment A, Sample Certification, at the end of this section.

1.5 LAWS AND REGULATIONS REQUIREMENTS

Work shall meet or exceed the minimum requirements established by federal, state, and local laws and regulations that are applicable. These requirements are amended frequently and the Contractor shall be responsible for complying with amendments as they become effective. In the event that compliance exceeds the scope of work or conflicts with specific requirements of the contract, the Contractor shall notify the Contracting Officer immediately.

Determine the state reporting requirements (i.e., generator state and/or disposal state) and obtain current state reporting forms. A completed draft of all required forms, with applicable attachments, shall be submitted to the CO for approval prior to submission to the federal or state regulator. The state reporting forms shall also be included within the Final Disposal Report.

1.6 DEFINITIONS

1.6.1 Hazardous Material

A substance or material determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated pursuant to the Hazardous Materials Transportation Act, 49 USC 1801. The term includes materials designated as hazardous materials under the provisions of 49 CFR 172.101 and 49 CFR 172.102 and materials that meet the defining criteria for hazard classes and divisions in 49 CFR 173. EPA designated hazardous wastes are also hazardous materials. Materials that meet the criteria established in the Toxic Substances Control Act (TSCA) in 15 USC 2601 et seq. are also hazardous materials.

1.6.2 Hazardous Waste

A waste that meets criteria established in RCRA or specified by the EPA in 40 CFR 261 or meets criteria established in TSCA or which has been designated as hazardous by a RCRA authorized state program.

Waste shall be segregated into the six types detailed below. Material segregation shall also be based on the disposal facility's waste acceptance criteria.

- a. TSCA Waste Greater Than 50 ppm: Site soils and debris exhibiting concentrations of PCBs greater than 50 ppm.
- b. TSCA Waste Greater Than 500 ppm (Principle Threat): Site soils exhibiting concentrations of PCBs greater than 500 ppm requiring treatment prior to disposal.
- c. RCRA Waste: Site soils and debris that has failed the TCLP test and/or contains a RCRA characteristic.

d. Mixed Waste Both RCRA and TSCA Greater Than 50 ppm: Site soils and debris exhibiting concentrations of PCBs greater than 50 ppm and having failed the TCLP test and/or containing a RCRA characteristic.

e. Mixed Waste Both RCRA and TSCA Greater Than 500 ppm: Site soils exhibiting concentrations of PCBs greater than 500 ppm, and having failed the TCLP test and/or containing a RCRA characteristic.

f. Subtitle D (Construction and Demolition Debris (C & D)): Debris resulting from the work at the site that is neither TSCA nor RCRA waste (i.e. is uncontaminated). This includes disposal of demolition debris from structures, pavement, existing site fencing not to be reused, and other site features to be demolished.

PART 2 PRODUCTS

2.1 MATERIALS

Provide all of the materials required for the packaging, labeling, marking, placarding and transportation of hazardous wastes and hazardous materials in conformance with Department of Transportation standards. Details in this specification shall not be construed as establishing the limits of the Contractor's responsibility.

2.1.1 Packagings

Provide bulk and non-bulk containers for packaging hazardous materials/wastes consistent with the general packaging requirements of

Subpart B of 49 CFR 173 referenced in the Hazardous Materials Table in 49 CFR 172.101, Column 8;

49 CFR 178 at the specified packing group performance level; and,

40 CFR 262.

Provide bulk and non-bulk containers for non-hazardous materials/wastes. Provide other packaging related materials such as materials used to cushion or fill voids in overpacked containers, etc. Sorbent materials shall not be capable of reacting dangerously with, being decomposed by, or being ignited by the hazardous materials being packaged. Additionally, sorbents used to treat free liquids to be disposed of in landfills shall be non-biodegradable as specified in 40 CFR 264.314.

2.1.2 Markings

Provide markings for each hazardous material/waste package, freight container, and transport vehicle consistent with the requirements of 49 CFR 172, Subpart D and 40 CFR 262.32 for hazardous waste, 40 CFR 761.45 for PCBs, 40 CFR 61.149(d) for asbestos. Markings shall be capable of withstanding, without deterioration or substantial color change, a 180-day exposure to conditions reasonably expected to be encountered during container storage and transportation.

2.1.3 Labeling

Provide primary and subsidiary labels for hazardous materials/wastes consistent with the requirements in the Hazardous Materials Table in

49 CFR 172.101, Column 6. Labels shall meet design specifications required by 49 CFR 172, Subpart E including size, shape, color, printing, and symbol requirements. Labels shall be durable and weather resistant and capable of withstanding, without deterioration or substantial color change, a 180-day exposure to conditions reasonably expected to be encountered during container storage and transportation.

2.1.4 Placards

For each off-site shipment of hazardous material/waste, provide primary and subsidiary placards consistent with the requirements of 49 CFR 172, Subpart F. Provide placards for each side and each end of bulk packaging, freight containers, transport vehicles, and rail cars requiring such placarding. Placards may be plastic, metal, or other material capable of withstanding, without deterioration, a 30-day exposure to open weather conditions and shall meet design requirements specified in 49 CFR 172, Subpart F.

2.1.5 Spill Response Materials

Provide spill response materials including containers, adsorbent, shovels, and personal protective equipment. Spill response materials shall be available at all times in which hazardous materials/wastes are being handled or transported. Spill response materials shall be compatible with the type of material being handled.

2.2 EQUIPMENT AND TOOLS

Provide miscellaneous equipment and tools necessary to handle hazardous materials and hazardous wastes in a safe and environmentally sound manner.

PART 3 EXECUTION

3.1 ON-SITE HAZARDOUS WASTE MANAGEMENT

These paragraphs apply to government-owned waste only. Contractors are prohibited by 10 USC 2692 from storing contractor-owned waste on site for any length of time. The Contractor shall be responsible for ensuring compliance with all federal, state, and local hazardous waste laws and regulations and shall verify those requirements when preparing reports, waste shipment records, hazardous waste manifests, or other documents.

Identify hazardous wastes using criteria set forth in 40 CFR 261 or all applicable state and local laws, regulations, and ordinances.

When accumulating hazardous waste on site, comply with generator requirements in 40 CFR 262 and any applicable state or local laws or regulations. On-site accumulation times shall be restricted to applicable time frames referenced in 40 CFR 262.34, and any applicable state or local law or regulation. Accumulation start dates shall commence when waste is first generated (i.e., containerized or otherwise collected for discard).

Immediately mark all hazardous waste containers with the words "hazardous waste" and other information required by 40 CFR 262.32, and any applicable state or local laws or regulations as soon as the waste is containerized. Only use containers in good condition and compatible with the waste to be stored. Ensure containers are closed except when adding or removing waste. Inspect containers for signs of deterioration and respond to any spills or leaks. Inspect all hazardous waste areas weekly and provide written documentation of the inspection. Inspection logs shall contain date and

time of inspection, name of individual conducting the inspection, problems noted, and corrective actions taken.

3.1.1 Hazardous Waste Classification

Characterize the waste stream to determine the most cost-effective TSDF facility that is in compliance with federal, state, and local laws and regulations.

The Contractor shall have a single Transportation and Disposal Coordinator review the complete classification, manifest package, and shipping documents and packaging certification. The cost for all samples to properly fill out the disposal waste profile sheet as required by the contractor shall be borne by the Contractor. The Transportation and Disposal Coordinator shall certify as correct the Hazardous Waste Manifest, Waste Profile Sheets, and Land Disposal Restriction Notification and Certification forms and supporting documentation. Once the review is completed, the Contractor shall submit these documents to the Contracting Officer for approval.

The Contractor shall perform TCLP sampling on the potentially RCRA or mixed waste material in accordance with Section 01450A CHEMICAL DATA QUALITY CONTROL.

3.1.2 Waste Management Plan and Addendum

The Contractor shall prepare and submit a Waste Management Plan no later than 30 days after the Notice to Proceed. The Waste Management Plan shall detail the manner in which nonhazardous and hazardous material will be managed both on and off site for the remedial activities. The plan shall also describe the types and volumes of wastes, including construction debris, soil, excavated water, and vegetation anticipated to be managed and the management practices to be utilized. Identify the following in the onsite portion of the plan:

- the method to be used to ensure accurate quantity counts and/or weights of shipments;

- waste minimization methods;

- the loading method that prevents the spreading of contaminated material and minimizes production of dust and spillage;

- proposed facilities to be utilized for storage and disposal;

- areas onsite where nonhazardous and hazardous materials are to be handled;

- whether transfer facilities are to be utilized; and if so, how the materials/wastes will be manifested to ultimate disposal; and, procedures to minimize the onsite holding times for waste.

The Contractor shall prepare a cluster-specific addendum to the approved Waste Management Plan for each building or cluster to be remediated.

3.1.3 Measurement of Transported Waste

Record the weight of waste shipped offsite in each container as measured by the onsite scale at the transshipment facility. The Onsite Measurement of

Transported Waste and Scale Calibrations shall be recorded and submitted to the Contracting Officer daily. Included on the documentation for will be the date and time of shipment, total weight measured, and name of scale operator.

The scale used to weigh the shipped waste shall be calibrated twice per day, as per the scale manufacturer's recommendations. Submit records of the calibration of the scale to the Contracting Officer within 2 days of the date of calibration.

The Contractor is required to comply with all requirements set forth by the receiving facility and transportation systems pertaining to the weight of shipments. Satisfying the weight requirements based on the measurements of the onsite scale does not relieve the Contractor of the responsibility to comply with receiving or transporting facility requirements.

Copies of each manifest shall be submitted to the Contracting Officer or designated representative within two days following shipment, and within two days after notification of receipt at the permitted disposal facility. Any manifest discrepancies shall be reported immediately to the Contracting Officer and resolved by the Contractor.

3.2 OFF-SITE HAZARDOUS WASTE MANAGEMENT

The Contractor shall be responsible for acceptance of the specific material at an appropriately permitted disposal facility, for ensuring that the facility is properly permitted to accept the stated material, and that the facility provides the stated disposal services.

The off-site handling, transportation, and disposal of hazardous wastes and materials shall comply with applicable DOT regulations, CFR, and state and local laws. Dispose of the hazardous materials/hazardous waste only in government-approved facilities. Provide the date of the proposed disposal facility's last compliance inspection. List all active compliance orders, enforcement notices, or Notices of Non-Compliance and Notices of Violation issued against proposed transporters and disposal facilities. State the source and nature of the cause of violation, if known. If applicable, drawings may be provided.

The Contracting Officer or designated representative reserves the right to contact and visit the disposal facilities to verify the agreement to accept the stated material and to verify any other information provided. This does not in any way relieve the Contractor of the responsibilities specified herein the contract.

In the case of all disposal facilities, if the identified and approved facility ceases to accept the stated material or the facility ceases operation, it is the Contractor's responsibility to locate an alternate USEPA approved and permitted facility for accepting material. The Contractor is responsible for making the necessary arrangements to utilize the facility, and the alternate facility must be approved in writing by the Contracting Officer or designated representative in the same manner and with the same requirements as for the original facility. This shall be done with no extra cost to the Government.

3.2.1 Offsite Disposal Plan

Submit as part of the Waste Management Plan an Offsite Disposal Section that includes the following:

all proposed government-approved transporters AND transfer and disposal facilities for all hazardous materials and wastes generated during construction;

proposed methods of siting and permit requirements of the local authorities to set up and operate a transshipment facility;

a material unloading and loading procedure;

all aspects and considerations for transportation hazards that will be involved during material/waste hauling operations; and,

procedures for incident response, methods to contain and clean up spills, details of manpower and equipment available, the coordination necessary to mobilize forces in an emergency, and traffic maintenance/warning procedures to be implemented within one hour following any accident or release of contaminated material.

3.2.2 Traffic Control Plan

Traffic Control Plan shall detail the local haul routes, street closure requirements, signage requirements, and repair and maintenance of haul routes. Coordinate with local emergency response and highway/road departments. The Traffic Control Plan shall be in accordance with Section 01500A TEMPORARY CONSTRUCTION FACILITIES and Section 02220 DEMOLITION and shall be submitted no later than 30 days after the Notice to Proceed.

3.2.3 Description of TSD Facility and Transporter

Provide the Contracting Officer with General Information on Transporters and all Offsite Disposal Facilities. At minimum, provide the following:

- a. Name and USEPA identification number. Complete EPA Form 8700-12, Notification of Hazardous Waste Activity, and submit to the Contracting Officer for review and approval. Allow a minimum of 30 days for processing the application and assigning the EPA ID number. Shipment shall be made not earlier than one week after receipt of the EPA ID number;
- b. Address;
- c. Name of responsible contact for the facility;
- d. Telephone and fax number for the contact;
- e. Signed letter of agreement to accept waste as specified in this Contract; and,
- f. Unit of measure utilized for costing purposes.

This information shall be contained in the Waste Management Plan for approval prior to waste disposal.

3.2.4 Shipping Documents and Packagings Certification

Prior to shipment of any hazardous material off-site, TDC shall provide written certification to the Contracting Officer that hazardous materials have been properly packaged, labeled, and marked in accordance with

Department of Transportation and EPA requirements.

Provide Certificates of Disposal documenting the ultimate disposal of contaminated material, hazardous waste, PCBs, and/or ACM within 180 days of initial shipment. Receipt of these certificates will be required for final payment and shall be included in the Final Disposal Report.

3.2.5 Transportation

Transportation to an approved disposal facility shall comply with all requirements in the Department of Transportation referenced regulations in the 49 CFR series. Use manifests for transporting hazardous and contaminated wastes as required by 40 CFR 263 or any applicable state or local law or regulation. Ensure that all operations for loading and hauling of wastes comply with Federal and State Department of Transportation (DOT) regulations, 40 CFR 262, 40 CFR 263, EPA OSWER Directive 9834.11 and all other applicable federal, state and local requirements. The Contractor shall be responsible for obtaining permits and authorizations necessary to use the selected shipping routes. Comply with restrictions imposed by local governmental agencies regarding use of the routes.

3.2.5.1 Security Plan for Hazardous Materials Shipments

Security Plan for Hazardous Materials Shipments shall be submitted in accordance with the regulatory requirements issued 25 March 2003 by the Research and Special Programs Administration (RSPA) of the Department of Transportation (DOT). The Security Plan for Hazardous Materials Shipments shall meet the requirements of 49 CFR 172 and must be approved prior to shipment of any hazardous materials. The plan shall be submitted no later than 30 days after the Notice to Proceed.

3.2.5.2 Transportation of Wastes and Materials

All vehicles used for transporting hazardous waste shall be in good working order, watertight, and have current inspections. The Contracting Officer shall inspect all the vehicles at the site prior to loading. At minimum, the following will be verified:

Demonstrate to the Contracting Officer that the tailgates are sealed watertight during operation. Any vehicle bed not providing an adequate leakproof seal shall be repaired or replaced as required.

Tarpaulin covers shall be placed over all vehicle beds during waste material transport to the transshipment facility to prevent any spillage of the waste material during transport. Waterproof tarpaulins shall be nylon, vinyl-coated on both sides with a tearing strength of 70 lbs (ASTM D 1117-01), or equal. All edges shall be hemmed, with reinforced grommets on maximum four-foot centers.

Covers shall be placed over trucks, trailers or other conveyances used for bulk shipment. The covers shall completely enclose the bulk shipment with no open areas along the sides or openings on the top.

Containers shall be sealed such that the material meets the requirements of the government-approved disposal site's permit. The containers shall conform to the requirements of 49 CFR 173.

The vehicles designated by the Contractor to haul contaminated

material/waste shall be used exclusively for this purpose until released by the Contracting Officer for "unrestricted use" based on the decontamination protocols defined in the Contractor's approved SSHP.

Failure of the shipping container, liner, seals, hatches, doors, or tarpaulin system to meet the above requirements that cause material to be rejected by the government-approved disposal site shall be addressed at no additional expense to the government.

Transportation routes to and from project areas shall be included in the Waste Management Plan. No deviation from transportation routes shall be allowed without prior written approval from the Contracting Officer.

Provide transportation of the waste directly to the disposal facility. If containerized, the waste may be transferred from one transportation vehicle to another, (e.g., from a truck to a rail car). Shipments of contaminated material shall remain packaged after leaving the project site. Coordinate recording quantities of waste leaving the site with the Contracting Officer.

3.2.5.3 Decontamination

Monitor vehicles for external contamination prior to leaving the excavation sites. In the event a vehicle becomes muddy or soil-covered, decontaminate in accordance with the Site Health and Safety Plan prior to leaving the site.

3.2.5.4 Accidental Spills and Cleanup

Any and all spills shall be cleaned up immediately. The Contractor shall be responsible for any and all actions necessary to remedy situations involving material spilled in transit or mud and dust tracked off site. This cleanup shall be accomplished at no additional expense to the government. If a truck is contaminated during unloading operations, clean the contaminated material from the truck, load it into an approved container, and dispose of the material as contaminated. Maintain all haul and access roads in a clean condition so that no dirt or contamination is tracked onto clean areas or public roads and highways.

3.2.6 Disposal of Hazardous Materials/Hazardous Wastes

Transport the hazardous materials/hazardous waste to a government-approved hazardous waste storage or disposal facility within 90 days of the accumulation start date on each container.

Use the disposal facilities identified in the approved Waste Management Plan for the performance of the work. Substitutions or additions will not be permitted without prior written approval from the Contracting Officer. Confirm that such facility provided the appropriate disposal services.

3.2.6.1 Staging Areas

Staging areas, if needed, shall be located onsite. The staging area shall be constructed in accordance with Section 02310 EXCAVATION. The equipment staging areas shall be sampled prior to the start of work to determine background contamination levels. Equipment staging areas shall be sampled post-remediation to verify contamination has not spread to previously uncontaminated areas.

3.2.6.2 Non-Hazardous Waste Disposal

Dispose of miscellaneous household items and uncontaminated demolition debris resulting from the work at an approved landfill facility pursuant of NJAC 7:26-1 et seq.

Non-contaminated metal and steel debris may be salvaged and recycled.

a. Disposal of Aboveground Structures

Structures shall be disposed of off-site in accordance with Section 02220 DEMOLITION.

b. Disposal of Debris Encountered During Excavation

Debris encountered during excavation for removal of buildings and structures shall be sampled and characterized as in Section 01450A CHEMICAL DATA QUALITY CONTROL. Dispose of characterized debris accordingly. Do not recycle the debris.

c. Wastewater

Collect, store, treat, sample, and dispose of wastewater including run off which enters excavations generated as part of the work in accordance with Section 01450A CHEMICAL DATA QUALITY CONTROL.

d. Asbestos Containing Materials

Except as specified herein, handling and disposal of asbestos containing materials shall meet the requirements of Section 13280A ASBESTOS HAZARD CONTROL ACTIVITIES.

3.3 HAZARDOUS MATERIALS MANAGEMENT

Evaluate, in consultation with the Contracting Officer, prior to shipment of any material off-site, whether the material is regulated as a hazardous waste in addition to being regulated as a hazardous material; do this for the purpose of determining proper shipping descriptions, and marking and disposal requirements.

3.3.1 Documentation

Prepare and submit all information necessary to file the Hazardous Waste Manifest Annual and/or Biennial Reports to the Contracting Officer for each Task Order to meet all federal or state laws and regulations as a part of the Final Disposal Report. These report sections shall contain all the information necessary for the filing of the formal report in the form and format required by the governing federal or state regulatory agency, including the Contract number; Contractor name; USACE Task Order number and project name; location of project; report type; and date of submittal.

Complete the Transportation and Disposal Tracking Form provided by the Government. This form allows the tracking of key Transportation and Disposal milestones throughout the performance of the work. The form lists all waste materials going off site including quantities, destination, and waste classification. When tracking the waste, identify the date that the transporter accepts the waste by their signature on the manifest.

Discrepancy Reports shall be provided to the Contracting Officer when

differences occur between the quantities or types of hazardous waste designated on the manifest or shipping papers, and the quantity or type of hazardous waste a facility actually receives. Report and rectify discrepancies within 15 days after receiving the waste. This information shall be presented in the Final Disposal Report.

Verify if the generator or generator's representative has received a copy of the signed manifest from the TSDF on or before the 35th day after transporter signature. If the generator or generator's representative has failed to receive a signed copy of the manifest by the 44th day, the Contractor shall prepare a draft EPA Exception Reports for CO approval. The Final Exception Report shall be submitted to the Contracting Officer no later than the 45th day after transporter signature. This information shall also be presented in the Final Disposal Report. Prior to official submittal of Exception Report, a draft copy of the report shall be submitted to the Contracting Officer for review.

Toxic Substance Control Act PCB Reporting Requirements: If specified in the Task Order, or in the event of discovery of equipment or containers, or any media including soil or water with PCB-contaminated fluid impacted by the work in Task Order notify the Contracting Officer immediately and report the findings in writing as soon as possible and complete and submit all necessary logs and reports in accordance with federal and state laws and regulations. Report all information concerning the incident, and include copies of all related documents in the Final Disposal Report.

Final Disposal Report: Provide all requirements mentioned above in paragraph Hazardous Materials Management.

3.4 WASTE MINIMIZATION

Minimize the generation of hazardous waste to the maximum extent practicable. Take all necessary precautions to avoid mixing clean and contaminated wastes.

3.5 EMERGENCY CONTACTS

Comply with the emergency contact provisions in 49 CFR 172.604. Whenever shipping hazardous materials, provide a 24-hour emergency response contact and the phone number of a person knowledgeable about the hazardous materials being shipped. This person will have comprehensive emergency response and incident mitigation information for that material, or immediate access to a person who possesses such knowledge and information. The telephone must be monitored on a 24-hour basis when the hazardous materials are in transport, including during storage incidental to transportation. Ensure that information regarding this emergency contact and telephone number is placed on all hazardous material shipping documents. Designate an emergency coordinator and post the following information where hazardous wastes are managed:

- a. The name of the emergency coordinator.
- b. Telephone number through which the emergency coordinator can be contacted on a 24-hour basis.
- c. The telephone number of the local fire department.
- d. The location of fire extinguishers and spill control materials.

Provide all spill information to the Contracting Officer within 2 hours of a spill.

3.6 TRANSPORTATION USING ON-SITE RAIL SPUR

The Contractor is notified that the Government is currently working towards construction of a rail spur at the site for the transportation of site soils under a future aspect of OU-2 remedial action. Should that rail spur be constructed and activated during the course of the building demolition activities outlined in these contract documents, the Government will require the Contractor to evaluate utilizing the rail spur for transportation of building materials to off-site disposal facilities. Operation of the rail spur by the Contractor will be under a separate contract.

Attachment A
SAMPLE OFF-SITE POLICY CERTIFICATION MEMO

Project/Contract #: _____
 Waste Stream: _____
 Primary TSD Facility, EPA ID # and Location: _____
 Alter. TSD Facility, EPA ID # and Location: _____

EPA Region -----	Primary Contact -----	Secondary Contact -----
I	(617) 565-9446	(617) 573-1754
II	(212) 637-4139	(212) 264-2638
III	(814) 566-3450	(215) 597-8338
IV	(404) 562-8589	(404) 347-7603
V	(312) 886-3587	(312) 886-4445
VI	(214) 665-2282	(214) 655-2281
VII	(913) 551-7883	(913) 551-7667
VIII	(303) 312-6419	(303) 293-1506
IX	(415) 744-2091	(415) 744-2114
X	(206) 553-1061	(206) 553-1061

EPA representative contacted: _____
 EPA representative phone number: _____
 Date contacted: _____

Comment: _____
 The above EPA representative was contacted on _____. As of that date
 the above sites were considered acceptable in accordance with the Off-Site
 Policy in 40 CFR 300.440.

Signature: _____ Date: _____
 Phone number: _____

-- End of Section --

SECTION 02373

GEOTEXTILE

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D 4354	(1999) Sampling of Geosynthetics for Testing
ASTM D 4355	(2002) Deterioration of Geotextiles from Exposure to Light, Moisture and Heat in a Xenon-Arc Type Apparatus
ASTM D 4533	(2004) Trapezoid Tearing Strength of Geotextiles
ASTM D 4632	(1991; R 2003) Grab Breaking Load and Elongation of Geotextiles
ASTM D 4751	(2004) Determining Apparent Opening Size of a Geotextile
ASTM D 4759	(2002) Determining the Specification Conformance of Geosynthetics
ASTM D 4833	(2000e1) Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
ASTM D 4873	(2002) Identification, Storage, and Handling of Geosynthetic Rolls and Samples

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-04 Samples

Manufacturing Quality Control Sampling And Testing

Quality Assurance Samples and Tests

Samples for quality assurance testing; 7 days shall be allotted

in the schedule to allow for testing.

SD-07 Certificates

Geotextile

A minimum of 7 days prior to scheduled use, manufacturer's certificate of compliance stating that the geotextile meets the requirements of this section. The certificate of compliance shall be attested to by a person having legal authority to bind the geotextile manufacturer.

1.3 DELIVERY, STORAGE AND HANDLING

Delivery, storage, and handling of geotextile shall be in accordance with ASTM D 4873.

1.3.1 Delivery

The Contracting Officer shall be notified a minimum of 24 hours prior to delivery and unloading of geotextile rolls. Rolls shall be packaged in an opaque, waterproof, protective plastic wrapping. The plastic wrapping shall not be removed until deployment. If quality assurance samples are collected, rolls shall be immediately rewrapped with the plastic wrapping. Geotextile or plastic wrapping damaged during storage or handling shall be repaired or replaced, as directed. Each roll shall be labeled with the manufacturer's name, geotextile type, roll number, roll dimensions (length, width, gross weight), and date manufactured.

1.3.2 Storage

Rolls of geotextile shall be protected from construction equipment, chemicals, sparks and flames, temperatures in excess of 160 degrees F, or any other environmental condition that may damage the physical properties of the geotextile. To protect geotextile from becoming saturated, rolls shall either be elevated off the ground or placed on a sacrificial sheet of plastic in an area where water will not accumulate.

1.3.3 Handling

Geotextile rolls shall be handled and unloaded with load carrying straps, a fork lift with a stinger bar, or an axial bar assembly. Rolls shall not be dragged along the ground, lifted by one end, or dropped to the ground.

PART 2 PRODUCTS

2.1 RAW MATERIALS

2.1.1 Geotextile

Geotextile shall be a nonwoven pervious sheet of polymeric material and shall consist of long-chain synthetic polymers composed of at least 95 percent by weight polyolefins, polyesters, or polyamides. The use of woven slit film geotextiles (i.e. geotextiles made from yarns of a flat, tape-like character) will not be allowed. Stabilizers and/or inhibitors shall be added to the base polymer, as needed, to make the filaments resistant to deterioration by ultraviolet light, oxidation, and heat exposure. Regrind material, which consists of edge trimmings and other scraps that have never reached the consumer, may be used to produce the

geotextile. Post-consumer recycled material may also be used. Geotextile shall be formed into a network such that the filaments or yarns retain dimensional stability relative to each other, including the edges. Geotextiles shall meet the requirements specified in Table 1. Where applicable, Table 1 property values represent minimum average roll values (MARV) in the weakest principal direction. Values for AOS represent maximum average roll values.

TABLE 1
MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE

PROPERTY	UNITS	ACCEPTABLE VALUES	TEST METHOD
GRAB STRENGTH	LBS	160	ASTM D 4632
PUNCTURE	LBS	95	ASTM D 4833
TRAPEZOID TEAR	LBS	60	ASTM D 4533
MASS/ UNIT AREA	G/SQ M	246	ASTM D 4751
ULTRAVIOLET DEGRADATION	PERCENT	70 AT 500 HRS	ASTM D 4355

2.2 MANUFACTURING QUALITY CONTROL SAMPLING AND TESTING

The Manufacturer shall be responsible for establishing and maintaining a quality control program to assure compliance with the requirements of the specification. Documentation describing the quality control program shall be made available upon request. Manufacturing quality control sampling and testing shall be performed in accordance with the manufacturer's approved quality control manual. As a minimum, geotextiles shall be randomly sampled for testing in accordance with ASTM D 4354, Procedure A. Acceptance of geotextile shall be in accordance with ASTM D 4759. Tests not meeting the specified requirements shall result in the rejection of applicable rolls.

PART 3 EXECUTION

3.1 QUALITY ASSURANCE SAMPLES AND TESTS

3.1.1 Quality Assurance Samples

The Contractor shall provide assistance to the Contracting Officer in the collection of quality assurance samples. Samples shall be collected upon delivery to the site for quality assurance testing at the request of the Contracting Officer. and in accordance with ASTM D 4354, Procedure B. Lot size for quality assurance sampling shall be considered to be the shipment quantity of the product or a truckload of the product, whichever is smaller. The unit size shall be considered one roll of geotextile. Samples shall be identified with a waterproof marker by manufacturer's name, product identification, lot number, roll number, and machine direction. The date and a unique sample number shall also be noted on the sample. The outer layer of the geotextile roll shall be discarded prior to sampling a roll. Samples shall then be collected by cutting the full-width

of the geotextile sheet a minimum of 3 feet long in the machine direction. Rolls which are sampled shall be immediately resealed in their protective covering.

3.1.2 Quality Assurance Tests

The Contractor shall provide quality assurance samples to an Independent Laboratory. Samples will be tested to verify that geotextile meets the requirements specified in Table 1. Test method ASTM D 4355 shall not be performed on the collected samples. Geotextile product acceptance shall be based on ASTM D 4759. Tests not meeting the specified requirements shall result in the rejection of applicable rolls.

3.2 INSTALLATION

3.2.1 Subgrade Preparation

The surface underlying the geotextile shall be smooth and free of ruts or protrusions which could damage the geotextile. Subgrade materials and compaction requirements shall be in accordance with Section 02320 Backfill and Compaction.

3.2.2 Placement

The Contractor shall notify the Contracting Officer a minimum of 24 hours prior to installation of geotextile. Geotextile rolls which are damaged or contain imperfections shall be repaired or replaced as directed. The geotextile shall be laid flat and smooth so that it is in direct contact with the subgrade. The geotextile shall also be free of tensile stresses, folds, and wrinkles.

3.3 SEAMS

3.3.1 Overlap Seams

Geotextile panels shall be continuously overlapped a minimum of 12 inches at all longitudinal and transverse joints.

3.4 PROTECTION

The geotextile shall be protected during installation from clogging, tears, and other damage. Damaged geotextile shall be repaired or replaced as directed. Adequate ballast (e.g. sand bags) shall be used to prevent uplift by wind. The geotextile shall not be left uncovered for more than 14 days after installation.

3.5 REPAIRS

Torn or damaged geotextile shall be repaired. Repairs shall be performed by placing a patch of the same type of geotextile over the damaged area. The patch shall extend a minimum of 12 inches beyond the edge of the damaged area. Geotextile rolls which cannot be repaired shall be removed and replaced. Repairs shall be performed at no additional cost to the Government

3.6 COVERING

Geotextile shall not be covered prior to inspection and approval by the Contracting Officer. Cover soil shall be placed in a manner that prevents

soil from entering the geotextile overlap zone, prevents tensile stress from being mobilized in the geotextile, and prevents wrinkles from folding over onto themselves. Cover soil shall not be dropped onto the geotextile from a height greater than 3 feet. No equipment shall be operated directly on top of the geotextile without approval of the Contracting Officer. Equipment with ground pressures less than 7 psi shall be used to place the first lift over the geotextile.

-- End of Section --

SECTION 02650

STORAGE TANK REMOVAL

PART 1 GENERAL

1.1 DESCRIPTION

This section includes the requirements for materials, equipment, and personnel for uncovering, handling and disposal of either above ground or underground storage tanks which will be encountered during demolition activities. All tanks which are encountered at the site will be closed and removed from the site. In-place closure will not be permitted.

The Contractor is advised that aboveground tanks exist in Clusters 10 and 12. An approximately 25 foot diameter elevated (approximately 110 feet) water storage tank exists in Cluster 10 and a 27 foot diameter by 30 feet high fuel oil storage tank exists in Cluster 12. Each tank constitutes a single discrete cluster. The fuel oil tank in Cluster 12 can be removed at any time independently of demolition in other clusters. The elevated tank removal requires relocation of several cellular telephone transmitters mounted on the tank and demolition of adjacent structures. Draining and cleaning of the fuel oil storage tank will be necessary prior to demolition. The water storage tank has been drained by the Site Owner. Both known tanks are out of service. The fuel oil storage tank was reportedly drained several years ago and cleaned and left in place. The Contractor is advised that the oil tank (Cluster 12) may contain fuel oil. The Contractor shall reclean and drain the tank prior to demolition. The tank contents and volumes have not been verified.

It is possible that additional tanks may be uncovered as the demolition Work proceeds. The Contractor shall properly handle all tanks that are discovered according to the requirements of this section. For the purposes of preparing bids, a bid item for each Cluster Nos. 1 through 11 has been included for removal of 5000 gallon capacity underground storage tank which is exposed during excavation for demolition.

All Storage Tank closure activities including registration and preparation of Tank Closure Reports, sampling, monitoring, testing, excavation and backfill, disposal of residuals and providing all documentation shall be performed by a Certified Tank Handler.

It has been assumed that all tanks are coated with lead-based paint. The Contractor shall conduct demolition activities to protect workers and the public from lead exposure in accordance with Section 13281A LEAD BASED PAINT AWARENESS.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN PETROLEUM INSTITUTE (API)

API PUBL 2217A

(1997) Guidelines for Work in Inert

Confined Spaces in the Petroleum Industry

API PUBL 2219	(1999) Safe Operation of Vacuum Trucks in Petroleum Service
API RP 1604	(1996; R 2001) Closure of Underground Petroleum Storage Tanks
API RP 2003	(1998) Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents
API Std 2015	(2001) Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks

ASTM INTERNATIONAL (ASTM)

ASTM D 1556	(2000) Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 1557	(2002e1) Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/cu. ft. (2,700 kN-m/cu.m.))
ASTM D 2167	(1994; R 2001) Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D 2922	(2004) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 3017	(2004) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 266	Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
40 CFR 268	Land Disposal Restrictions
40 CFR 279	Standards for the Management of Used Oil
40 CFR 280	Technical Standards and Corrective Action

Requirements for Owners and Operators of
Underground Storage Tanks (UST)

NEW JERSEY ADMINISTRATIVE CODE (NJAC)

NJAC 7:14 Water Pollution Control Act, including
7:14A, Pollutant Discharge Elimination
System

NJAC 7:26E Technical Requirements for Site Remediation

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA SW-846.3-3 (1999, Third Edition, Update III-A) Test
Methods for Evaluating Solid Waste:
Physical/Chemical Methods

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Storage Tank Handling Plan; G.

The Storage Tank Handling Plan within 30 days after Notice To Proceed. The Contractor shall allow 30 days in the schedule for the Government's review and approval. No adjustment for time or money will be made for resubmittals required as a result of noncompliance.

Qualifications; G

A document indicating that the Contractor meets the specified requirements.

Salvage Rights.

A record of the disposition of salvaged materials at the end of the contract.

SD-06 Reports

Backfill Material; G, A/E.

Tank Sampling And Analytical Program

The Contractor shall maintain field log documentation of all sampling activities and a chain of custody for the samples collected.

Tank Contents Verification; G.

Contaminated Water Disposal; G.

Soil Examination, Testing, and Analysis; G, A/E

Reports including the chain-of-custody records.

Backfilling; G.

Copies of all laboratory and field test reports.

Tank Closure Report.

Five (5) copies of the report for each tank site opened, prepared in a standard 3-ring binder, within 14 days of completing work at each site. Each binder shall be labeled with contract number, project name, location and tank number; each binder shall be indexed. A copy of the report shall be furnished to the Installation Environmental Coordinator.

1.4 QUALIFICATIONS

The Contractor shall have a minimum of 5 years of tank removal experience and shall be certified by the State of New Jersey for tank removal work.

1.4.1 Laboratory Services

For laboratory services the Contractor shall be validated in accordance with state certification requirements and Section 01450A CHEMICAL DATA QUALITY CONTROL.

1.4.2 Support Staff

The Contractor shall identify all staff involved for the various components, including personnel collecting and shipping samples. The qualifications of these staff members shall be detailed by the Contractor.

1.5 REGULATORY REQUIREMENTS

1.5.1 Permits and Licenses

The Contractor, as required or as directed by the Contracting Officer, shall obtain local, state, or federal permits and licenses that directly impact the Contractor's ability to perform the work prior to commencing removal operations.

1.5.2 Statutes and Regulations

Tank closures shall be carried out in accordance with 40 CFR 280, 40 CFR 262, 40 CFR 264, and 40 CFR 265 as well as the applicable local and State of New Jersey regulations, such as NJAC 7:14B-9, NJAC 7:26EE3.9, and NJAC 7:26E E-6.3. Hazardous waste shall be transported in accordance with Section 02350 TRANSPORTATION AND DISPOSAL.

1.6 Sequencing and Scheduling

The Contractor shall notify the Contracting Officer 3 days prior to tank removal.

1.7 Storage Tank Handling Plan

The Contractor shall develop, implement, maintain, and supervise as part of

the work, a comprehensive plan for tank removal and related operations. As a minimum the plan shall include, but not be limited to, excavation, removal, and ultimate disposal of the tank, its contents, and any contaminated materials. The Storage Tank Handling Plan shall be based on work experience, on the requirements of this specification, and on the following references:

- a. API RP 1604.
- b. API Std 2015.
- c. API RP 2003.
- d. API PUBL 2217A.
- e. API PUBL 2219.

No work at the site, with the exception of site inspections and mobilization, shall be performed until the Storage Tank Handling Plan is approved. At a minimum, the Storage Tank Handling Plan shall include:

- a. Discussion of the removal approach, tank cleaning, and tank cutting procedures.
- b. A Sampling and Analysis Plan prepared in accordance with Section 01450A CHEMICAL DATA QUALITY CONTROL.
- c. Methods to be employed for product, sludge, vapor, and pumpable liquid removal; purging and inerting; and storage methods proposed for control of surface water.
- d. Treatment options.
- e. Identification of waste, tank and contaminated soil transporters and means of transportation.
- f. Treatment, disposal, and alternate facilities, and means of treatment, disposal or remediation.
- g. Borrow source.
- h. Spill prevention plan.
- i. Spill contingency plan.
- j. Decontamination procedures, shoring plan, and safety measures in accordance with Section 01351 SAFETY, HEALTH, AND EMERGENCY RESPONSE (HTRW/UST).

PART 2 PRODUCTS

2.1 BACKFILL MATERIAL

Backfill material shall be obtained from off-site sources and consist of Dense-Graded Aggregate in accordance with Section 02320 Backfill and Compaction.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

3.1.1 Safety Guidelines

Personnel shall abide by the safety guidelines specified in Section 01351 SAFETY, HEALTH, AND EMERGENCY RESPONSE (HTRW/UST).

3.1.2 Burning and Explosives

Use of explosives or burning debris will not be allowed.

3.1.3 Protection of Existing Structures and Utilities

The Contractor shall take all necessary precautions to avoid damage to existing structures, their appurtenances, monitoring wells, or utilities that may be affected by work activities. Any damage to utilities resulting from the Contractor's operations shall be repaired at no expense to the Government. The Contractor shall coordinate with site management and the Contracting Officer to locate underground utilities prior to beginning construction. Utilities encountered which were not previously shown or otherwise located shall not be disturbed without approval from the Contracting Officer.

3.1.4 Shoring

Shoring requirements shall be provided in accordance with Section 01351 SAFETY, HEALTH, AND EMERGENCY RESPONSE (HTRW/UST).

3.2 TANK SAMPLING AND ANALYTICAL PROGRAM

3.2.1 General

All sampling of liquids, sludges, and/or solids from storage tanks shall be performed by the Contractor. The Contractor shall provide all sample containers and be responsible for sample collection, packing, preservation, transport, and analysis. The Contractor shall maintain field log documentation of all sampling activities and a chain of custody for the samples collected.

3.2.2 Objectives

a. The Contractor shall segregate tank contents as they are encountered during construction activities based on visual observations and air monitoring readings. The rationale shall be to consolidate and stage similar tank contents together to more effectively sample the contents. The Contractor shall bulk similar materials prior to representative sampling for analytical testing, to the extent possible for efficient and cost-effective sampling, analysis, and disposal. The Analytical Program shall be structured to provide data in a time frame that will allow expedient removal, off-site transportation and disposal of tank materials exhibiting hazardous characteristics.

b. Tank opening and sampling procedures shall be in accordance with current OSHA Standards for protection of tank sampling personnel. Personnel in the immediate vicinity shall be upwind of the tank being opened. The Contractor shall be responsible for collection of a representative sample.

c. The Contractor shall describe the sampling procedures and equipment to sample tank liquids, sludges, and solids in the Storage Tank Handling Plan. The objective of this plan shall be to characterize the tank material as required to:

- (1) Field screen materials for staging using appropriate instrumentation and applicable field screening tests.
- (2) Determine material compatibility for safe staging, segregation, bulking, or recontainerization.
- (3) Sample and analyze tank material for hazardous characteristics.
- (4) Determine treatment and disposal requirements for tank material exhibiting hazardous characteristics.
- (5) Allow transportation of tank material in accordance with regulatory requirements.
- (6) Identify potential RCRA permitted disposal facilities.

3.2.3 Sampling and Analytical Plan Contents

a. The Contractor's sampling and analytical program to be described in the Storage Tank Handling Plan shall address:

- (1) Sample identification and tracking procedures.
- (2) Waste compatibility testing procedures, protocols and analytical parameters.
- (3) Waste segregation criteria.
- (4) Waste sample collection procedures and methodology.
- (5) Information necessary to complete waste disposal application requirements for off-site disposal facilities.
- (6) Schedule of all activities including typical sample analysis response times (RCRA and disposal characterization), assessment of treatment/disposal options, waste consolidation if appropriate, and off-site disposal.

3.2.4 Hazardous Characterization Determination

a. The Contractor shall use the following USEPA methods from EPA SW-846.3-3 for characterizing tank material samples or as necessary to satisfy off-site disposal facility requirements:

- (1) Ignitability: USEPA 1010.
- (2) Corrosivity: USEPA 9040/9045.
- (3) Reactivity:
 - 6.4.3.1 Cyanide: USEPA 9012.
 - 6.4.3.2 Sulfide: USEPA 9030.
- (4) Free Liquids: USEPA 9095.
- (5) Toxicity:
 - USEPA 1311-Toxicity Characteristic Leaching Procedure (TCLP) Preparation.
 - USEPA 8270C-TCLP Semivolatiles.
 - USEPA 8260B-TCLP Volatiles.
 - USEPA 8081A0-TCLP Pesticides.
 - USEPA 8082-TCLP PCBs.
 - USEPA 8151A-TCLP Herbicides.
 - USEPA 6010B, 7470A and 7471A-TCLP Metals.
- (6) Compatibility: The purpose of compatibility testing is to determine which materials for off-site disposal (i.e., classified as exhibiting characteristics of hazardous waste as defined by 40 CFR 261) can be safely consolidated (i.e., bulked) for disposal purposes. The Contractor shall bulk materials to the extent

possible based on the characterization results and in field bulking tests. The Contractor shall describe the procedures to be followed for bulking (i.e., compatibility testing) in the Storage Tank Handling Plan.

(7) Partial TCLP Parameter: Analytical testing of solid materials (e.g., testing for the inorganic fraction only) will be allowed if it is apparent from visual observations that the likelihood of the sample containing any TCLP organic parameters is minimal. For example, a sample collected from a tank containing sand or gravel would be tested only for TCLP inorganic parameters and the other hazardous characteristic parameters.

3.2.5 Disposal Samples

The Contractor shall follow the analytical methods necessary to satisfy off-site disposal facility requirements.

3.2.6 Data Reporting

Written results of the hazardous characterization testing performed by the Contractor shall be submitted to the Contracting Officer within 21 calendar days of sampling and at least 14 days prior to transportation of tank material off-site. Written results of the compatibility testing shall be submitted to the Contracting Officer within 2 days of performing the compatibility testing and 14 days prior to transportation of the materials off-site. For materials which are determined to be Hazardous, the Contracting Officer will obtain provisional generator ID number for the site.

3.3 CLEARING, GRUBBING AND REMOVALS

Clearing and grubbing shall be as completed as required and directed by the Contracting Officer shall be cleared of all trees, stumps, down timber, brush, rubbish, roots larger than 3 inches in diameter, and matted roots prior to commencing operations. Concrete or asphalt pavement shall be saw cut at the limits of removal, broken and removed with the resulting debris disposed off Government Property. Chain link fence shall be disposed of off-site.

3.4 PREPARATIONS FOR DEMOLITION OF TANK

Before demolition the Contractor shall drain product piping back to the tank and remove all product from the tank; and the tank shall be purged and vented in accordance with API RP 1604, and as specified herein.

3.4.1 Removal of Product, Pumpable Liquids, and Sludge

Tank product, pumpable liquids, and sludge shall be contained, and stored onsite, prior to disposal. Contaminated water shall be treated as specified. Tank product, pumpable liquids, and sludge shall be removed and disposed of by the Contractor. No Government facilities shall be used for permanent storage or disposal of the wastes. Temporary storage on the site Government facilities will be allowed only until testing is complete, manifests (if necessary) are complete, and transportation is arranged. The Contractor shall be responsible for complying with all required permits. The Contractor shall provide approved containers, vehicles, equipment, labor, signs, labels, placards and manifests and associated land disposal restriction notices and notifications, necessary for accomplishment of the work, including materials necessary for cleaning up spills that could occur

from tank removal operations.

3.4.2 Contaminated Water Disposal

3.4.2.1 Sampling, Analysis, and Containment

Contaminated water shall be sampled and analyzed both prior to and after treatment. Contaminated water produced from excavation operations and tank pumping treated onsite, shall be analyzed for pH; benzene, ethylbenzene, toluene, and xylene (BETX); total lead; oil and grease; and total petroleum hydrocarbons (TPH). Sampling and analysis shall be performed prior to disposal for every 50,000 gallons of contaminated water treated. Analysis for contaminated water to be taken to an off-site treatment facility shall conform to the requirements of the treatment facility with documentation of all analyses performed furnished to the Contracting Officer in accordance with paragraph RECORDS. Contaminated water shall be contained, stored onsite, and analyzed prior to being transported to the approved treatment, storage and disposal facility and disposed of by the Contractor in accordance with applicable Federal and state disposal regulations. The Contractor shall provide approved containers, vehicles, equipment, labor, signs, labels, placards and manifests and associated land disposal notices and notifications, necessary for accomplishment of the work. Sampling and analyses of contaminated water and treated water and the Contractor and laboratory quality assurance program shall be in accordance with Section 01450A CHEMICAL DATA QUALITY CONTROL.

3.4.2.2 Treatment

Contaminated water shall be treated off-site by oil water separation or other means as approved by the Contracting Officer. If contaminated water is to be treated onsite, the proposed treatment shall be specified in the Storage Tank Handling Plan and submitted for approval. Temporary storage and treatment equipment shall be installed in the general vicinity of the tanks at a location approved by the Contracting Officer. Treated effluent shall be sampled and analyzed and the results approved by the Contracting Officer before discharge to disposal. Effluent shall be treated and discharged in accordance with the discharge permit.

3.5 HANDLING OF ABOVEGROUND TANKS

During demolition operations, any aboveground tank that may be encountered shall be removed. This subsection describes the minimum requirements for handling, sampling, staging, and disposal to be followed by the Contractor.

The Contractor's procedures shall be described in the Storage Tank Handling Plan. Minimum requirements for sampling and analysis are specified in the Tank Sampling and Analytical Program. The intent of the specified approach is to optimize the material handling methodology to efficiently minimize costs of sampling and off-site disposal.

3.5.1 Handling

During demolition operations, if aboveground tanks are encountered, the Contractor shall segregate them from other on-site waste material. Prior to handling and removing the tank from the Work area, the Contractor shall visually assess the tank contents and its potential hazardous condition. The Contractor shall submit Tank Contents Verification. Conditions shall be assessed to determine if the tank is leaking, bulging, crushed, or empty. For non-empty tanks, the Contractor shall record any identification or markings on the tank. An information sheet shall be developed as part

of the Contractor's Storage Tank Handling Plan upon which the Contractor shall record information such as container type, size, condition, type of materials, and any identifying characteristics of the material. Contents of leaking, damaged tanks shall be transferred to new tanks at the Work area to minimize contamination due to transporting leaking tanks. All Work shall proceed in a controlled manner so as to minimize the potential dangers associated with extraction of tank materials.

3.6 ABOVEGROUND TANK DISPOSAL

Aboveground tanks shall be rendered unfit for further use by the Contractor. This shall be accomplished by cutting a sufficient number (as determined by the Contracting Officer) of holes in the tank or by other acceptable methods as approved by the Contracting Officer. Before cutting operations are performed on the excavated tanks, additional explosimeter readings shall be taken inside the tanks to confirm an atmosphere of less than 10 percent LEL.

The Contractor shall dispose of the scuttled tanks following approval of the Contracting Officer, at a scrap metal salvage yard or a solid waste management facility permitted to receive wastes of this type. A letter from the Contractor certifying the final disposition of each tank shall be provided to the Contracting Officer.

The Contractor shall follow the guidelines published in API Std 2015 and API RP 1604 for the safe handling, transportation and disposal of the tanks removed from the site(s).

3.7 UNDERGROUND TANK REMOVAL AND DISPOSAL

At this time, the presence of underground tanks is unknown. Any such tanks uncovered during the building demolition process shall be handled in accordance with this section.

Tanks shall be drained and cleaned.

The Contractor shall excavate the soil and fill along the top of each tank to expose all fittings and piping on and connected to the tank.

All product suction and return piping and level instrumentation conduits shall be disconnected, drained and removed.

Excavate and remove soils within three feet of the tank and segregate them based upon visual determination or use of using a photoionization detector (PID) or other Contracting Officer approved device into obviously contaminated and not believed soil piles.

For soils which are obviously contaminated, including but not limited to: product staining or saturation, ponded product in the excavation, or free product or sheen in the excavation, the Contracting Officer must be notified.

Remove the tank from the excavation for offsite disposal and complete confirmatory sampling for the tank and fill and delivery piping in accordance with the Closure Requirements for Underground Storage Tank Systems.

3.8 PURGING AND INERTING

3.8.1 Purging

Tanks shall be purged for confined space entry. The flammable vapors shall be reduced to less than 10% of the LFL and the oxygen content shall be between 19.5% and 23.5%. Confined space entry into the tanks shall not be attempted unless absolutely necessary, as for example, to remove sludge from the tank. Flammable vapors may be exhausted from the tank by any of the methods from API RP 1604 listed below, or any method approved by the Contracting Officer. The APP/SSHP shall specify the purging method to be used.

a. Ventilation by Eductor-Type Air Movers: The eductor-type air mover shall be properly bonded and grounded to prevent the generation and discharge of static electricity. When using this method, the fill (drop) tube shall remain in place to ensure ventilation at the bottom of the tank. Tanks equipped with fill (drop) tubes that are not removable shall be purged by this method. An eductor extension shall be used to discharge vapors a minimum of 12 feet above grade or 3 feet above adjacent roof lines, whichever is greater. If this is not possible, alternative methods shall be proposed and approved prior to purging. Noise levels generated by these devices as a result of high airflow may exceed OSHA PELs. Noise levels shall be evaluated and appropriate hearing protection shall be provided.

b. Ventilation by Diffused Air Blowers: When using this purging method, the air-diffusing pipe is properly bonded and grounded to prevent the discharge of a spark. Fill (drop) tubes shall be removed to allow proper diffusion of the air in the tank. Air supply shall be from a compressor that has been checked to ensure that Grade D breathing air is being supplied. Air pressure in the tank shall not exceed 5 psi gauge to avoid tank failure.

c. Commercial Emulsifiers and Volatile Fuel Encapsulators: These products are completely miscible in water, aid in the elimination of flammable vapors, and are biodegradable. Regulatory requirements for treatment and disposal of the water shall be determined prior to using this method. Standing outside the tank, the operator shall rinse the tank with a 3-to-6 percent solution of the product using a pressure sprayer through a tank opening. Explosive concentrations shall be measured at several levels (top, middle, and bottom) within the tank. If readings are greater than 10% of the LFL, the tank shall be rinsed again. When LFL readings are acceptable, the water in the tank shall be pumped out for disposal.

3.8.2 Tank Inerting

Following the removal of tank contents but prior to excavation of the tanks and tank preparation activities, the tanks shall be inerted only by introducing an inert gas, carbon dioxide (CO₂) or liquid nitrogen (N₂), to remove flammable vapors. Before inerting, all openings in the tanks shall be plugged with threaded or expansion type plugs except the vent tube and the opening to be used for introducing the inert gas. Within 30 minutes prior to initiating any activities (e.g., excavating, preparation, removal, opening, demolition, transportation, or other similar activities) involving a tank which has been inerted, the inerted nature of the tank (oxygen levels less than 8%) shall be verified.

a. CO2 fire extinguishers shall not be used for inerting the tank interiors. If a compressed gas (e.g., CO2 or N2) is introduced into the tank the following requirements shall be met to prevent the buildup of static electricity:

(1) The UST and the compressed gas supply tank shall be bonded together and grounded.

(2) The compressed gas shall be supplied only at low flows.

(3) The liquid or gas shall be released at the tank bottom so that static electricity is not generated by liquid falling to the bottom of the tank. The tank shall be slowly filled from the bottom up.

b. Dry ice, which evolves CO2 gas as it evaporates, if used, shall be introduced in the amount of at least 3 lbs per 100 gallons of tank capacity. Skin contact with dry ice shall be prevented by wearing heavy cloth gloves.

c. Sufficient quantities of inert gas (CO2 or N2) shall be introduced into the tanks to lower the oxygen content to less than 8%. Pressure inside the tank shall not exceed 5 psi. Prior to proceeding with additional activities on the tank (e.g., excavating), the oxygen content of the tanks shall be monitored to confirm that it is less than 8%. Additional oxygen level monitoring shall be conducted at least hourly while activities involving the tanks are underway but prior to decontamination of tank interiors; at least daily during periods in which the tanks are not being disturbed but prior to decontamination of their interiors; or as directed by the Contracting Officer. If monitoring of tank interiors indicates that oxygen levels are not remaining below 8%, additional inert gas shall be introduced and more frequent oxygen monitoring shall be initiated.

d. During inerting procedures, an extension vent tube a minimum of 12 feet above grade or 3 feet above any adjacent (within 75 feet) roof lines, whichever is greater shall be used to discharge tank vapors. If this is not possible, alternative methods shall be proposed and approved prior to inerting. Continuous combustible gas/oxygen monitoring shall be conducted at the vent and inert gas introduction holes.

3.8.3 Tank Atmosphere Testing

The air within the storage tanks shall be monitored to ensure the space is either adequately purged and safe for personnel entry, or to ensure the tank has been adequately inerted and the oxygen content is less than 8%. In both instances, monitoring shall be performed at the top, bottom, and middle areas of the tanks to ensure stratification has not occurred. Monitoring results shall be reported to project personnel to ensure safe operations. Data shall be recorded as specified in paragraph EXPOSURE MONITORING/AIR SAMPLING PROGRAM.

3.8.4 Monitoring to Ensure Purging

When monitoring to ensure purging, both oxygen content and LFL readings are required. Prior to obtaining LFL readings, the Contractor shall monitor the oxygen content of the space and verify that the combustible gas indicators are operating within the oxygen limits identified by the CGI

manufacturer. Personnel shall not be permitted to enter spaces with oxygen levels less than 19.5%, except in emergencies, and then only when equipped with the proper PPE and when following permit-required confined space entry procedures. Toxic air contaminants shall be monitored as specified in paragraph EXPOSURE MONITORING/AIR SAMPLING PROGRAM.

3.8.5 Monitoring to Ensure Inerting

Inerted tanks shall be monitored to ensure oxygen readings remain below a maximum allowable percentage of 8% by volume.

3.9 TANK CLEANING

3.9.1 General

Safety practices and procedures for the cleaning of the storage tanks shall conform to API Std 2015. Opening of the tanks to permit decontamination shall be conducted utilizing only methods approved in the APP/SSHP. The interior and exterior of the tank shall be decontaminated prior to removing it from the work site unless the tank is being transported directly to a state certified tank destruction facility. Plans and procedures, including materials and supplies, for safely and effectively opening the tanks, cleaning surfaces of the interior and exterior of the tanks, and disposing of the decontamination fluids shall be submitted in the SSHP. Volatile organic solvents shall not be permitted to be utilized for decontamination procedures. Personnel shall not enter any of the storage tanks as a part of this project, except when following permit-required confined space entry procedures. Decontamination fluids shall be collected and disposed. Upon completion of this project, written certification shall be made that the tank was properly decontaminated prior to being removed from the site.

3.9.2 Exterior

Soil shall be removed from the exterior of the tank, piping, and associated equipment to eliminate soil deposition on roadways during transportation to a temporary storage area, ensure markings will adhere to the surfaces, and simplify tank cutting. Soil shall be removed using non-sparking tools. Removed uncontaminated soil and soil not regulated by the state as a hazardous waste shall be recovered and used as backfill in the former tank excavation or disposed of onsite. Soil believed to be contaminated shall be removed and containerized, or if the site is a RCRA designated CAMU, collected on an impermeable 30 millimeter polyethylene sheeting and stockpiled with other contaminated soil removed from the excavation as specified in Section 02310 EXCAVATION.

3.9.3 Temporary Storage

If the tank is stored after the tank exterior is cleaned and ancillary equipment is removed, and prior to being cut into sections, the tank shall be labeled as directed in API RP 1604, placed on blocks, and temporarily stored on a flat area adjacent to the excavation. Prior to cleaning the tank interior the tank atmosphere shall be monitored for combustible vapors and purged or inerted if combustible vapors are detected.

3.9.4 Interior

The tank interior shall be cleaned using a high pressure (greater than 500 psi), low volume (less than 2 gpm) water spray or steam cleaned until all loose scale and sludge is removed, and contamination, in the form of a

sheen, is no longer visible in the effluent stream. The interior surfaces of piping shall also be cleaned, to the extent possible, using the same method used for cleaning the tank.

All contaminated water resulting from cleaning operations shall be collected and stored on site and then discharged to the installation sanitary sewer after passing through an oil water separator. Cleaning shall be accomplished eliminating, to the greatest extent possible, the need for personnel to enter the tank. Cleaning shall be done using specially designed tank cleaning equipment which allows the tank to be cleaned prior to cutting into sections without requiring personnel to enter the tank or, if less specialized equipment is used, the tank shall be partially dissected to overcome confined space entry hazards. This work shall be accomplished in accordance with Section 01351 SAFETY, HEALTH, AND EMERGENCY RESPONSE (HTRW/UST).

3.10 EXCAVATION

Excavation areas, as well as work near roadways, shall be marked in accordance with Section 01351 SAFETY, HEALTH, AND EMERGENCY RESPONSE (HTRW/UST).

3.10.1 Exploratory Trenches

Exploratory trenches shall be excavated as necessary to determine the tank location, limits and the location of ancillary equipment.

3.10.2 Tank Excavation

Excavation around the perimeter of the tank shall be performed limiting the amount of potentially petroleum contaminated soil that could be mixed with previously uncontaminated soil. Petroleum contaminated soil shall be segregated in separate stockpiles. The Contractor shall maintain around the tank an excavation of sufficient size to allow workers ample room to complete the work, but also protect the workers from sliding or cave-ins. Sheet piling, bracing, or shoring shall be installed in the absence of adequate side slopes if there is a need for workers to enter the excavated area. Surface water shall be diverted to prevent direct entry into the excavation. Dewatering of the excavation may require a discharge permit by the State and shall be limited to allow adequate access to the tank and piping, to assure a safe excavation, and to ensure that compaction and moisture requirements are met during backfilling. Dewatering may result in the production of petroleum contaminated water and/or free product. Free product shall be recovered from the groundwater only as part of necessary dewatering.

3.10.3 Piping Excavation

Excavation shall be performed as necessary to remove tank piping and ancillary equipment in accordance with paragraphs: Shoring, Tank Excavation, and Open Excavations.

3.10.4 Open Excavations

Open excavations and stockpile areas shall be secured while awaiting confirmation test results from the soil beneath the tank. The excavation shall be backfilled as soon as possible after tank and contaminated soil removals have been completed and confirmation samples have been taken. The Contractor shall divert surface water around excavations to prevent water

from directly entering into the excavation.

3.10.5 Stockpiles

Uncontaminated excavated soil shall be reused onsite. Petroleum contaminated soil that is not a state-regulated hazardous waste shall be disposed of off-site. Excavated material that is regulated by the state as a hazardous waste which is visibly stained and which has an obvious petroleum odor or as required by the State of New Jersey or implementing agency shall be considered contaminated and shall be stockpiled if the site is a RCRA-designated CAMU or placed in containers such as drums, roll-offs or dumpsters for sampling in accordance with paragraph Stockpiled Material Sampling. Uncontaminated soil shall be stockpiled separately from the contaminated soil, a safe distance away from, but adjacent to, the excavation. Allowable stockpiles of contaminated soil shall be placed on an impermeable 30 millimeter polyethylene sheeting as specified in Section 02310 EXCAVATION. The sheeting shall be placed to prevent the stockpiled soil from coming into contact with surface water run-off. The sheeting cover shall prevent rain or surface water from coming into contact with the contaminated soil, as well as limit the escape of the volatile constituents in the stockpile.

3.11 REMOVAL OF PIPING, ANCILLARY EQUIPMENT, AND TANK

3.11.1 Piping and Ancillary Equipment

All piping and ancillary equipment shall be disconnected from the tank. The piping shall be removed completely (interior and exterior of the tank) to the exterior surface of the tank, where it shall be capped and abandoned in place or as directed by the Contracting Officer. All tank ancillary equipment and piping connections shall be capped, except those connections necessary to inert the tank within the excavation zone. The piping exterior and ancillary equipment shall be cleaned to remove all soil and inspected for signs of corrosion and leakage. The Contractor shall ensure no spillage of the piping contents occurs, as specified in the Storage Tank Handling Plan, and as required in paragraph SPILLS. If the soil under and around the tank pad is contaminated, the tank pad shall be removed and disposed of off-site at an approved hazardous waste facility.

3.11.2 Tank Lifting

Tanks shall be lifted using equipment with a rated capacity greater than the load to be lifted. Tanks shall be lifted by lifting eyes or by straps under the ends of the tanks. Tanks shall not be lifted by the manhole flange or by removing the bungs. Personnel shall be directed to remain away from the ends of the tanks and tanks shall be positioned, whenever possible, with the ends oriented away from occupied or traveled areas, due to potential for rupture. During transportation, the tanks shall be secured to prevent movement.

3.11.3 Tank Demolition

Excavated tanks shall be demolished before being removed from the site unless they are transported directly to a state certified tank destruction facility. Demolition will not be permitted until a decontamination of the interiors and exteriors is complete. Demolition shall involve opening the tanks sufficiently to permanently prohibit further use as containers of liquids. Tanks shall be inerted and tested before they are opened. Plans and procedures, including a list of materials and supplies, for safely and

effectively demolishing the tanks shall be submitted in the APP/SSHP.

3.11.4 Contaminated Soil, Tank and Piping Excavation Examination

After the tank has been removed from the ground, the adjacent and underlying soil shall be examined for any evidence of leakage. The soil shall be visually inspected for staining after removal of all obviously contaminated soil, then screened for the presence of volatile and/or semi-volatile contamination using a real time vapor monitoring instrument. Petroleum contaminated soil not regulated by the state as hazardous waste shall be stockpiled onsite per paragraph Stockpiles and transported off-site for disposal. Contaminated soil or suspected contaminated soil shall be containerized, or, if the site is a RCRA-designated CAMU, stockpiled until further disposition. The Contracting Officer shall determine the extent of the contaminated soil to be removed from each site but shall not exceed 100 cubic yards. The Contractor shall report any evidence indicating that the amount of contaminated soil may exceed the individual site limit specified, to the Contracting Officer the same day it is discovered. If minimal additional excavation is required, the Contracting Officer may allow the Contractor to proceed. If extensive contamination is encountered, the excavation shall be sampled and backfilled in accordance with paragraph BACKFILLING. After the known contaminated soil is removed, the excavation shall be sampled and analyzed in accordance with Section 01450A CHEMICAL DATA QUALITY CONTROL.

3.12 SOIL EXAMINATION, TESTING, AND ANALYSIS

3.12.1 Tank Excavation Sampling Procedures

After soil known to be contaminated has been removed or after soil excavation is complete, the excavation shall be sampled with procedures, number, location, and methodology in accordance with state regulations and Section 01450A CHEMICAL DATA QUALITY CONTROL. Samples may be obtained from the pits using a backhoe with a Shelby tube attached to the bucket. Sample preservation and analytical procedures shall conform to Section 01450A CHEMICAL DATA QUALITY CONTROL.

3.12.2 Stockpiled Material Sampling

Stockpiled contaminated soil shall be sampled and preserved in accordance with the approved Sampling and Analysis Plan, and Section 01450A CHEMICAL DATA QUALITY CONTROL. Sampling locations, number and specific procedures shall be as required by the State of New Jersey and the disposal facility.

3.12.3 Analysis

Soil samples from the excavation and stockpiled material shall be tested in accordance with the approved Sampling and Analysis Plan, and Section 01450A CHEMICAL DATA QUALITY CONTROL for the following parameters: total petroleum hydrocarbon (TPH), benzene, ethylbenzene, toluene, xylene (BETX), and toxicity characteristic leaching procedure (TCLP). Copies of all test results shall be provided to the Contracting Officer.

3.13 BACKFILLING

The tank area and any other excavations shall be backfilled as soon as possible after tank and contaminated soil removals have been completed and confirmation samples have been taken and after the soil test results have been approved. Contaminated soil removal shall be complete after the

bottom of the tank excavation is determined to have soil contamination levels below the state standards of 100 ppm TPH and approval by the Contracting Officer. The excavation shall be dewatered if necessary. Stockpiled material subjected to chemical confirmation testing shall be used as backfill if it is found to conform to the requirements of clean fill per appropriate state and local regulations and contain less than 100 ppm of total petroleum hydrocarbons (TPH) and contain less than 10 ppm of BETX. Backfill consisting of clean fill or alternatively dense graded aggregate shall be placed in layers with a maximum loose thickness of 8 inches, and compacted to 95 percent maximum density for cohesive soils and 95 percent maximum density for cohesionless soils in accordance with Section 02320 BACKFILL AND COMPACTION. Density tests shall be performed by an approved commercial testing laboratory or by facilities furnished by the Contractor. Test results shall be attached to Contractor's Quality Control Report. A minimum of 1 density test shall be performed on each lift. Laboratory tests for moisture density relations shall be determined in accordance with ASTM D 1557, Method B, C, or D, or ASTM D 3017. A mechanical tamper may be used provided that the results are correlated with those obtained by the hand tamper. Field in-place density shall be determined in accordance with ASTM D 1556, ASTM D 2922, or ASTM D 2167.

3.14 DISPOSAL REQUIREMENTS

3.14.1 Treatment, Disposal, and Recycling

Disposal of hazardous or special wastes shall be in accordance with all local, State, and Federal solid and hazardous waste laws and regulations; the RCRA; Section 02350 TRANSPORTATION AND DISPOSAL; and conditions specified herein. This work shall include all necessary personnel, labor, transportation, packaging, detailed analyses (if required for disposal, manifesting or completing waste profile sheets), equipment, and reports. Product and pumpable liquids removed from the tank shall be recycled to the greatest extent practicable. The tanks removed shall be disposed of at state approved facilities. Each tank disposed of in this manner shall be manifested as required by the State of New Jersey to document delivery and acceptance at the disposal facility.

3.14.2 Tank and Ancillary Equipment Disposal

After the tank, piping, and ancillary equipment have been removed from the excavation and the tank cleaned, the tank shall be cut into sections with no dimension greater than 5 feet. Tank and piping sections shall be recycled or disposed of in a USEPA Region 2 approved off-site disposal facility. The tank shall be cut into sections prior to being taken from the tank removal site. The Contractor shall not sell the tank intact. Ancillary equipment shall be disposed of at an approved off-site disposal facility. Piping shall be disconnected from the tank and removed to a distance of 6 feet north of the tank foundation wall. Remaining piping beyond 6 feet North of the tank foundation shall be grouted with a cement and water slurry consisting of 6 gallons of clean water per 94 pound sack of portland cement, thoroughly mixed and free of lumps unless otherwise indicated.

3.14.3 Transportation of Wastes

Transportation shall be provided in accordance with Department of Transportation (DOT) Hazardous Material Regulations and State and local requirements, including obtaining all necessary permits, licenses, and approvals. Evidence that a State licensed waste transporter is being used

shall be included in the SUBMITTALS.

3.14.4 Salvage Rights

The Contractor shall retain the rights to salvage value of recycled or reclaimed product and metal, so long as the requirements of 40 CFR 266 and 40 CFR 279, or the applicable State requirements are met. At the end of the contract, the Contractor shall provide documentation on the disposition of salvaged materials.

3.14.5 Records

Records shall be maintained of all waste determinations, including appropriate results of analyses performed, substances and sample location, the time of collection, and other pertinent data as required by 40 CFR 280, Section 74 and 40 CFR 262 Subpart D, and Section 01450A CHEMICAL DATA QUALITY CONTROL. Transportation, treatment, disposal methods and dates, the quantities of waste, the names and addresses of each transporter and the disposal or reclamation facility, shall also be recorded and available for inspection, as well as copies of the following documents:

- a. Manifests.
- b. Waste analyses or waste profile sheets.
- c. Certifications of final treatment/disposal signed by the responsible disposal facility official.
- d. Land disposal notification records required under 40 CFR 268 for hazardous wastes.

Records shall be provided in accordance with Section 02350 TRANSPORTATION AND DISPOSAL. Following contract close out, the records shall become the property of the Government.

3.14.6 Hazardous/Special Waste Manifests

Manifesting shall conform to the requirements specified in Section 02350 TRANSPORTATION AND DISPOSAL.

3.14.7 Documentation of Treatment or Disposal

The wastes, other than recyclable or reclaimable product or metal, shall be taken to a treatment, storage, or disposal facility which has EPA or appropriate state permits and hazardous or special waste identification numbers and complies with the provisions of the disposal regulations. Documentation of acceptance of special waste by a facility legally permitted to treat or dispose of those materials shall be furnished to the Contracting Officer not later than 5 working days following the delivery of those materials to the facility; and a copy shall be included in the Tank Closure Report. A statement of agreement from the proposed treatment, storage or disposal facility and certified transporters to accept hazardous or special wastes shall be furnished in the Storage Tank Handling Plan and to the Contracting Officer not less than 14 days before transporting any wastes. If the Contractor selects a different facility than is identified in the Storage Tank Handling Plan, documentation shall be provided for approval to certify that the facility is authorized and meets the standards specified in 40 CFR 264.

3.15 SPILLS

Immediate containment actions shall be taken as necessary to minimize effect of any spill or leak. Cleanup shall be in accordance with applicable Federal, State, local laws and regulations, and district policy at no additional cost to the Government. Refer to Section 02350 TRANSPORTATION AND DISPOSAL for spill response and reporting requirements.

3.16 TANK CLOSURE REPORT

Tank Closure Reports shall be provided for the oil tank (Cluster 12) and any discovered underground storage tanks. Each Tank Closure Report shall include the following information as a minimum:

- a. A narrative report describing what was encountered at the site, including:
 - (1) condition of the tank.
 - (2) any visible evidence of leaks or stained soils.
 - (3) results of vapor monitoring readings.
 - (4) actions taken including quantities of materials treated or removed.
 - (5) reasons for selecting sample locations.
 - (6) sample locations.
 - (7) collection data such as time of collection and method of preservation.
 - (8) reasons for backfilling site.
 - (9) whether or not groundwater was encountered.
- c. Copies of all analyses performed for disposal.
- d. Copies of all waste analyses or waste profile sheets.
- e. Copies of all certifications of final disposal signed by the responsible disposal installation official.
- f. Information on who sampled, analyzed, transported, and accepted all wastes encountered, including copies of manifests, waste profile sheets, land disposal restriction, notification and certification forms, certificates of disposal, and other pertinent documentation.
- g. Copies of all analyses performed for confirmation that underlying soil is not contaminated, with copies of chain-of-custody for each sample. Analyses shall give the identification number of the sample used. Sample identification numbers shall correspond to those provided on the one-line drawings.
- h. Progress Photographs. The Contractor shall take a minimum of 4 views of the site showing such things as the location of each tank, entrance/exit road, and any other notable site condition

before work begins. After work has been started at the site, the Contractor shall photographically record activities at each work location daily. Photographs shall be 3 x 5 inches and shall include:

- (1) Soil removal, handling, and sampling.
- (2) Unanticipated events such as discovery of additional contaminated areas.
- (3) Soil stockpile area.
- (4) Tank.
- (5) Site or task-specific employee respiratory and personal protection.
- (6) Fill placement and grading.
- (7) Post-construction photographs. After completion of work at each site, the Contractor shall take a minimum of four (4) views of the site. Prints shall illustrate the condition and location of work and the state of progress. The photographs shall be mounted and enclosed back-to-back in a double face plastic sleeve punched to fit standard three ring binders. Each color print shall show an information box, 1-1/2 x 3-1/2 inches. The information box for the 3 x 5 inch photographs shall be scaled down accordingly, or taped to the bottom of the photo. The box shall be typewritten and arranged as follows:

Project No.

Contract No.

Location

Contractor/Photographer

Photograph No.

Date/Time:

Description

Direction of View

-- End of Section --

SECTION 02742

HOT MIX BITUMINOUS PAVEMENT

PART 1 GENERAL

1.1 SCOPE OF WORK

Contractor shall provide all labor, materials, tools, and equipment to install all temporary and permanent paving as shown, specified, and ordered.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

NEW JERSEY DEPARTMENT OF TRANSPORTATION (NJDOT)

NJDOT STANDARD SPECIFICATIONS	(1996) New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction
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ASTM INTERNATIONAL (ASTM)

ASTM C 117	(2003) Materials Finer Than 75 micrometer (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C 131	(2003) Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C 136	(2001) Sieve Analysis of Fine and Coarse Aggregates
ASTM D 1559	(1989) Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus
ASTM D 2172	(2001e1) Quantitative Extraction of Bitumen from Bituminous Paving Mixtures
ASTM D 4867/D 4867M	(1996) Effect of Moisture on Asphalt Concrete Paving Mixtures
ASTM D 546	(1999e1) Sieve Analysis of Mineral Filler for Bituminous Paving Mixtures
ASTM D 75	(2003) Sampling Aggregates
ASTM D 979	(2001) Sampling Bituminous Paving Mixtures
ASTM D 3666	(2004) Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-05 Design Data

Mix Design; G, A/E

SD-06 Reports

Specific gravity of asphalt

Specific gravity of mineral filler

Aggregates tests

Bituminous Mix Tests

Pavement Courses Testing

1.4 QUALITY ASSURANCE

1.4.1 Required Data

The Mix Design shall show the following:

- a. Source and proportions, percent by weight, of each ingredient of the mixture;
- b. Correct gradation, the percentages passing each size sieve listed in the specifications for the mixture to be used, for the aggregate and mineral filler from each separate source and from each different size to be used in the mixture and for the composite mixture;
- c. Amount of material passing the No. 200 sieve determined by dry sieving;
- d. Number of blows of hammer compaction per side of molded specimen;
- e. Temperature viscosity relationship of the asphalt cement;
- f. Stability, flow, percent voids in mineral aggregate, percent air voids, unit weight;
- g. Asphalt absorption by the aggregate;
- h. Effective asphalt content as percent by weight of total mix;
- i. Temperature of the mixture immediately upon completion of mixing;
- j. Asphalt performance grade; and
- k. Curves for the leveling, binder, and wearing courses.

1.4.2 Charts

Plot and submit, on a grain size chart, the specified aggregate gradation band, the job-mix gradation and the job-mix tolerance band.

1.4.3 Selection of Optimum Asphalt Content

Base selection on percent of total mix and the average of values at the following points on the curves for each mix:

- a. Stability: Peak
- b. Unit Weight: Peak
- c. Percent Air Voids: Median

1.5 DELIVERY, STORAGE, AND HANDLING

Inspect materials delivered to the site for damage and store with a minimum of handling. Store aggregates in such a manner as to prevent segregation, contamination, or intermixing of the different aggregate sizes.

1.6 ENVIRONMENTAL CONDITIONS

Place bituminous mixture only during dry weather and on dry surfaces. Place courses only when the surface temperature of the underlying course is greater than 45 degrees F for course thicknesses greater than one inch and 55 degrees F for course thicknesses one inch or less.

1.7 CONSTRUCTION EQUIPMENT

Calibrated equipment, such as scales, batching equipment, spreaders and similar equipment, shall have been recalibrated by a calibration laboratory approved by the Contracting Officer within 12 months of commencing work.

1.7.1 Testing Laboratory

Provide a testing laboratory for control and acceptance testing functions during periods of mix production, sampling and testing, and whenever materials subject to the provisions of these specifications are being supplied or tested. The laboratory shall provide adequate equipment, space, and utilities as required for the performance of the specified tests.

1.7.2 Surge and Storage Bins

Use surge and storage bins for temporary storage of hot bituminous mixtures will not be permitted.

1.7.3 Drum-Dryer Mixer

Do not use drum-dryer mixer if specified requirements of the bituminous mixture or of the completed bituminous pavement course cannot be met. If drum-dryer mixer is prohibited, use either batch or continuous mix plants meeting the specifications and producing a satisfactory mix.

1.7.4 Paving Equipment

1.7.4.1 Spreading Equipment

Self-propelled electronically controlled type, unless other equipment is authorized by the Contracting Officer. Equip spreading equipment of the self-propelled electronically controlled type with hoppers, tamping or vibrating devices, distributing screws, electronically adjustable screeds, and equalizing devices. Equipment shall be capable of spreading hot bituminous mixtures without tearing, shoving, or gouging and to produce a finished surface of specified grade and smoothness. Operate spreaders, when laying mixture, at variable speeds between 5 and 45 feet per minute. Design spreader with a quick and efficient steering device; a forward and reverse traveling speed; and automatic devices to adjust to grade and confine the edges of the mixture to true lines. The use of a spreader that leaves indented areas or other objectionable irregularities in the fresh laid mix during operations is prohibited.

1.7.4.2 Rolling Equipment

Self-propelled pneumatic-tired rollers supplemented by three-wheel and tandem type steel wheel rollers. The number, type and weight of rollers shall be sufficient to compact the mixture to the required density without detrimentally affecting the compacted material. Rollers shall be suitable for rolling hot-mix bituminous pavements and capable of reversing without backlash. Pneumatic-tired rollers shall be capable of being operated both forward and backward without turning on the mat, and without loosening the surface being rolled. Equip rollers with suitable devices and apparatus to keep the rolling surfaces wet and prevent adherence of bituminous mixture. Vibratory rollers especially designed for bituminous concrete compaction may be used provided rollers do not impair stability of pavement structure and underlying layers. Repair depressions in pavement surfaces resulting from use of vibratory rollers. Rollers shall be self-propelled, single or dual vibrating drums, and steel drive wheels, as applicable; equipped with variable amplitude and separate controls for energy and propulsion.

1.7.4.3 Hand Tampers

Minimum weight of 25 pounds with a tamping face of not more than 50 square inches.

1.7.4.4 Mechanical Hand Tampers

Commercial type, operated by pneumatic pressure or by internal combustion.

PART 2 PRODUCTS

2.1 PRODUCTS

2.1.1 Paving Materials (Job-Mix Designs)

Surface course (Mix I-4) shall conform to the NJDOT STANDARD SPECIFICATIONS, as amended.

Subbase shall be Dense Graded Aggregate, AASHTO No. 57, as shown on Table 901-1 of the NJDOT STANDARD SPECIFICATIONS.

Prime coat as per Section 404.13 of NJDOT STANDARD SPECIFICATIONS.

2.2 SOURCE QUALITY CONTROL

Employ a commercial laboratory approved by the Contracting Officer to perform testing. The laboratory used to perform all sampling and testing shall meet the requirements of ASTM D 3666 and NJDOT. A certification signed by the manager of the laboratory stating that it meets these requirements or clearly listing all deficiencies shall be submitted to the Contracting Officer prior to the start of construction. The certification shall contain as a minimum:

- a. Qualifications of personnel; laboratory manager, supervising technician, and testing technicians.
- b. A listing of equipment to be used in developing the job mix.
- c. A copy of the laboratory's quality control system.
- d. Evidence of participation in the AASHTO Materials Reference Laboratory (AMRL) program.

2.2.1 Tests

Perform testing in accordance with the NJDOT STANDARD SPECIFICATIONS Sections 301, 305, 404, and 903.

PART 3 EXECUTION

3.1 GENERAL

3.1.1 Subgrades

Subgrades shall be prepared in accordance with Section 02320 BACKFILL AND COMPACTION.

3.1.2 Base Course

Aggregate Base Course shall be constructed in accordance with NJDOT STANDARD SPECIFICATIONS Section 301.

3.1.3 Surface Course

Surface Course shall be constructed in accordance with NJDOT STANDARD SPECIFICATIONS Section 404.

3.2 TRANSPORTATION OF BITUMINOUS MIXTURES

Transport bituminous material from the mixing plant to the paving site in trucks having tight, clean, smooth beds that have been coated with a minimum amount of concentrated solution of hydrated lime and water or other approved coating to prevent adhesion of the mixture to the truck. Petroleum products will not be permitted for coating truck. If air temperature is less than 60 degrees F or if haul time is greater than 30 minutes, cover each load with canvas or other approved material of ample size to protect the mixture from the loss of heat. Make deliveries so that the spreading and rolling of all the mixture prepared for one day's run can be completed during daylight, unless adequate approved artificial lighting is provided. Deliver mixture to area to be paved so that the temperature at the time of dumping into the spreader is within the range specified herein. Reject loads that are below minimum temperature, that have crusts of cold

unworkable material, or that have been wet excessively by rain. Hauling over freshly laid material is prohibited.

3.3 SPRAYING OF CONTACT SURFACES

Spray surface of aggregate base course with a thin coat of emulsion or other approved bituminous material prior to placing the bituminous mixture.

3.4 PLACEMENT

3.4.1 Machine Spreading

TABLE VI

MINIMUM SPREADING TEMPERATURES

Base Temp. in Degrees F (*)	Wearing, Binder, or Leveling Course Thickness, Inches							
	1/2	3/4	1	1 1/2	2	3	3 1/2	4
20-32 (**)	---	---	---	---	---	---	275 (**)	260 (**)
+32-40 (**)	---	---	---	---	295	280	270	260
+40-50	---	---	---	300	285	275	265	255
+50-60	---	---	300	295	280	270	260	255
+60-70	---	300	290	285	275	265	255	250
+70-80	300	290	285	280	270	265	255	250
+80-90	290	280	275	270	265	260	250	250
+90	280	275	270	265	265	255	250	250

* Note: Base on which mix is placed.

** Note: Increase by 15 degrees when placement is on base or subbase containing frozen moisture. Normally, hot mix paving is not allowed on base temperatures below 45 degrees F.

The range of temperatures of the mixtures at the time of spreading shall be between 250 degrees F and 300 degrees F. Bituminous concrete having temperatures less than minimum spreading temperature when dumped into the spreader will be rejected. Adjust spreader and regulate speed so that the surface of the course is smooth and continuous without tears and pulling, and of such depth that, when compacted, the surface conforms with the cross section, grade, and contour indicated. Unless otherwise directed, begin the placing along the centerline of areas to be paved on a crowned section or on the high side of areas with a one-way slope. Place mixture in consecutive adjacent strips having a minimum width of 10 feet, except where the edge lanes require strips less than 10 feet to complete the area. Construct longitudinal joints and edges to true line markings. Establish lines parallel to the centerline of the area to be paved, and place string lines coinciding with the established lines for the spreading machine to follow. Provide the number and location of the lines needed to accomplish proper grade control. When specified grade and smoothness requirements can be met for initial lane construction by use of an approved long ski-type device of not less than 30 feet in length and for subsequent lane construction by use of a short ski or shoe, in-place string lines for grade control may be omitted. Place mixture as nearly continuous as possible and adjust the speed of placing as needed to permit proper rolling.

3.4.2 Shoveling, Raking, and Tamping After Machine-Spreading

Shovelers and rakers shall follow the spreading machine. Add or remove hot mixture and rake the mixture as required to obtain a course that when completed will conform to requirements specified herein. Broadcasting or fanning of mixture over areas being compacted is prohibited. When segregation occurs in the mixture during placing, suspend spreading operation until the cause is determined and corrected. Correct irregularities in alignment left by the spreader by trimming directly behind the machine. Immediately after trimming, compact edges of the course by tamping laterally with a metal lute or by other approved methods. Distortion of the course during tamping is prohibited.

3.4.3 Hand-Spreading in Lieu of Machine-Spreading

In areas where the use of machine spreading is impractical, spread mixture by hand. The range of temperatures of the mixtures when dumped onto the area to be paved shall be between 250 and 300 degrees F. Mixtures having temperatures less than minimum spreading temperature when dumped onto the area to be paved will be rejected. Spread hot mixture with rakes in a uniformly loose layer of a thickness that, when compacted, will conform to the required grade, thickness, and smoothness. During hand spreading, place each shovelful of mixture by turning the shovel over in a manner that will prevent segregation. Do not place mixture by throwing or broadcasting from a shovel. Do not dump loads any faster than can be properly handled by the shovelers and rakers.

3.5 COMPACTION OF MIXTURE

Compact mixture by rolling. Begin rolling as soon as placement of mixture will bear rollers. Delays in rolling freshly spread mixture shall not be permitted. Start rolling longitudinally at the extreme sides of the lanes and proceed toward center of pavement, or toward high side of pavement with a one-way slope. Operate rollers so that each trip overlaps the previous adjacent strip by at least one foot. Alternate trips of the roller shall be of slightly different lengths. Conduct tests for conformity with the specified crown, grade and smoothness immediately after initial rolling. Before continuing rolling, correct variations by removing or adding materials as necessary. If required, subject course to diagonal rolling with the steel wheeled roller crossing the lines of the previous rolling while mixture is hot and in a compactable condition. Speed of the rollers shall be slow enough to avoid displacement of hot mixture. Correct displacement of mixture immediately by use of rakes and fresh mixture, or remove and replace mixture as directed. Continue rolling until roller marks are eliminated and course has a density of at least 90 percent but not more than 100 percent of that attained in a laboratory specimen of the same mixture prepared in accordance with ASTM D 1559. During rolling, moisten wheels of the rollers enough to prevent adhesion of mixture to wheels, but excessive water is prohibited. Operation of rollers shall be by competent and experienced operators. Provide sufficient rollers for each spreading machine in operation on the job and to handle plant output. In places not accessible to the rollers, compact mixture thoroughly with hot hand tampers. Skin patching of an area after compaction is prohibited.

Remove mixture that becomes mixed with foreign materials or is defective and replace with fresh mixture compacted to the density specified herein. Roller shall pass over unprotected edge of the course only when laying of course is to be discontinued for such length of time as to permit mixture to become cold.

3.6 JOINTS

Joints shall present the same texture and smoothness as other portions of the course, except permissible density at the joint may be up to 2 percent less than the specified course density. Carefully make joints between old and new pavement or within new pavements in a manner to ensure a thorough and continuous bond between old and new sections of the course. Vertical contact surfaces of previously constructed sections that are coated with dust, sand, or other objectionable material shall be painted with a thin uniform coat of emulsion or other approved bituminous material just before placing fresh mixture.

3.6.1 Transverse

Roller shall pass over unprotected end of freshly laid mixture only when laying of course is to be discontinued. Cut back the edge of previously laid course to expose an even, vertical surface for the full thickness of the course. When required, rake fresh mixture against joints, thoroughly tamp with hot tampers, smooth with hot smoothers, and roll.

3.6.2 Longitudinal Joints

Space 6 inches apart. Adjust screed to permit compaction to produce a smooth dense joint. Remove and waste excess material. When edges of longitudinal joints are irregular, honeycombed, or poorly compacted, cut back unsatisfactory sections of joint and expose an even vertical surface for the full thickness of the course. When required, rake fresh mixture against joint, thoroughly tamp with hot tampers, smooth with hot smoothers, and roll while hot.

3.7 FIELD QUALITY CONTROL

3.7.1 Sampling

3.7.1.1 Aggregates At Source

Prior to production and delivery of aggregates, take at least one initial sample in accordance with ASTM D 75 at the source. Collect each sample by taking three incremental samples at random from the source material to make a composite sample of not less than 50 pounds. Repeat the sampling when the material source changes or when testing reveals unacceptable deficiencies or variations from the specified grading of materials.

3.7.1.2 Cold Feed Aggregate Sampling

Take two samples daily from the belt conveying materials from the cold feed. Collect materials in three increments at random to make a representative composite sample of not less than 50 pounds. Take samples in accordance with ASTM D 75.

3.7.1.3 Coarse and Fine Aggregates

Take a 50 pound sample from the cold feed at least once daily for sieve analyses and specific gravity tests. Additional samples may be required to perform more frequent tests when analyses show deficiencies, or unacceptable variances or deviations. The method of sampling is as specified herein for aggregates.

3.7.1.4 Mineral Filler

ASTM D 546. Take samples large enough to provide ample material for testing. Include the Specific Gravity of Mineral Filler.

3.7.1.5 Pavement and Mixture

Take plant samples for the determination of mix properties and field samples for thickness and density of the completed pavements. Furnish tools, labor and material for samples, and satisfactory replacement of pavement. Take samples and tests at not less than frequency specified hereinafter and at the beginning of plant operations; for each day's work as a minimum; each change in the mix or equipment; and as often as

directed. Accomplish sampling in accordance with ASTM D 979. Include the Specific Gravity of Asphalt.

3.7.2 Testing

3.7.2.1 Aggregates Tests

- a. Gradation: ASTM C 136.
- b. Mineral Filler Content: ASTM D 546.
- c. Abrasion: ASTM C 131 for wear (Los Angeles test). Perform one test initially prior to incorporation into the work and each time the source is changed.

3.7.2.2 Bituminous Mix Tests

Test one sample for each 500 tons, or fraction thereof, of the uncompacted mix for extraction in accordance with ASTM D 2172; perform a sieve analysis on each extraction sample in accordance with ASTM C 136 and ASTM C 117. Test one sample for each 500 tons or fraction thereof for stability and flow in accordance with ASTM D 1559. Test one sample for each material blend for Tensile Strength Ratio in accordance with ASTM D 4867/D 4867M.

3.7.2.3 Pavement Courses Testing

Perform the following tests:

- a. Density: Compare density of in-place material against laboratory specimen or certificates on same bituminous concrete mixture. Use nuclear devices to determine densities. A minimum of one in-place density test shall be performed for every 500 square yards of pavement and a minimum of one in-place density test for each property at which pavement is constructed.

Minimum acceptable density of in-place course material will be 90 percent of the recorded laboratory specimen or certificate density. Maximum acceptable density will be 98 percent.

- b. Thickness: Determine thickness of each course from samples taken for the field density test. The maximum allowable deficiency at any point shall not be more than 1/4 inch less than the thickness for the indicated course. Average thickness of course or of combined courses shall be not less than the indicated thickness. Where a deficiency exceeds the specified tolerances, correct each such representative area or areas by removing the deficient pavement and replacing with new pavement.
- c. Smoothness: Straightedge test the compacted surface of each course as work progresses. Apply straightedge parallel with and at right angles to the centerline after final rolling. Unevenness of each course shall not vary more than 1/4 inch in 10 feet; variations in the wearing course shall not vary more than 1/8 inch in 10 feet. Correct each portion of the pavement showing irregularities greater than that specified.
- d. Finished Grades: Finish grades of each course placed shall not vary from the finish elevations, profiles, and cross sections indicated by more than 1/4 inch. Finished surface of the final

wearing course will be tested by running lines of levels at intervals of 10 feet longitudinally and transversely to determine elevations of completed pavement. Within 45 days after completion of final placement, Correct deficient paved areas by removing existing work and replacing with new materials that meet the specifications. Skin patching for correcting low areas is prohibited.

- e. Finish Surface Texture of Surface Course: Visually check final surface texture for uniformity and reasonable compactness and tightness. Final wearing course with a surface texture having undesirable irregularities such as segregation, cavities, pulls or tears, checking, excessive exposure of coarse aggregates, sand streaks, indentations, ripples, or lack of uniformity shall be repaired as directed by the Contracting Officer.

3.8 PROTECTION

Do not permit vehicular traffic, including heavy equipment, on pavement until surface temperature has cooled to at least 120 degrees F. Measure surface temperature by approved surface thermometers or other satisfactory methods.

3.9 PATCHING

As directed by Contracting Officer, in writing, remove and replace all defective areas. Cut out such areas and fill with fresh bituminous concrete. Compact to the required density.

3.10 CLEANING AND PROTECTION

3.10.1 Cleaning

After completion of paving operations, clean surfaces of excess or spilled bituminous materials and all foreign matter.

3.10.2 Cover Openings

Cover openings of drainage structures in the area of paving until permanent coverings are placed.

3.11 ROADWAY REPAIRS

The Contractor shall be responsible for repairing all incidental damage and settlement that occurs in roadways as result of construction activities. Material and labor to complete all repair work, in accordance with all local codes and ordinances, shall be at the Contractor's expense. The Government will not provide additional compensation for this work.

-- End of Section --

SECTION 02821A

FENCING

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM A 153/A 153M	(2005) Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A 392	(2003) Zinc-Coated Steel Chain-Link Fence Fabric
ASTM A 824	(2001) Metallic-Coated Steel Marcellled Tension Wire for Use With Chain Link Fence
ASTM F 1043	(2004) Strength and Protective Coatings on Metal Industrial Chain-Link Fence Framework
ASTM F 1083	(2004) Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures
ASTM F 1184	(2003) Industrial and Commercial Horizontal Slide Gates
ASTM F 626	(1996a; R 2003) Fence Fittings
ASTM F 883	(2004) Padlocks
ASTM F 900	(2003) Industrial and Commercial Swing Gates

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-07 Certificates

Chain Link Fence

Statement, signed by an official authorized to certify on behalf of the manufacturer, attesting that the chain link fence and component materials meet the specified requirements.

PART 2 PRODUCTS

2.1 FENCE FABRIC

Fence fabric shall conform to the following:

2.1.1 Chain Link Fence Fabric

ASTM A 392, Class 1, zinc-coated steel wire with minimum coating weight of 1.2 ounces of zinc per square foot of coated surface. Fabric shall be fabricated of 9 gauge wire woven in 2 inch mesh. Fabric height shall be 6 feet as shown. Fabric shall be twisted and barbed on the top selvage and knuckled on the bottom selvage.

2.2 GATES

ASTM F 900 and/or ASTM F 1184. Gate shall be the type and swing shown. Gate frames shall conform to strength and coating requirements of ASTM F 1083 for Group IA, steel pipe, with external coating Type A, nominal pipe size (NPS) 1-1/2. Gate frames shall conform to strength and coating requirements of ASTM F 1043, for Group IC, steel pipe with external coating Type A or Type B, nominal pipe size (NPS) 1-1/2. Gate fabric shall be as specified for chain link fabric. Gate leaves more than 8 feet wide shall have either intermediate members and diagonal truss rods or shall have tubular members as necessary to provide rigid construction, free from sag or twist. Gate leaves less than 8 feet wide shall have truss rods or intermediate braces. Gate fabric shall be attached to the gate frame by method standard with the manufacturer except that welding will not be permitted. Latches, hinges, stops, keepers, rollers, and other hardware items shall be furnished as required for the operation of the gate. Latches shall be arranged for padlocking so that the padlock will be accessible from both sides of the gate. Stops shall be provided for holding the gates in the open position.

2.3 POSTS

2.3.1 Metal Posts for Chain Link Fence

ASTM F 1083, zinc-coated. Group IA, with external coating Type A steel pipe. Sizes shall be as shown on the drawings. Line posts and terminal (corner, gate, and pull) posts selected shall be of the same designation throughout the fence. Gate post shall be for the gate type specified subject to the limitation specified in ASTM F 900 and/or ASTM F 1184.

2.4 BRACES AND RAILS

ASTM F 1083, zinc-coated, Group IA, steel pipe, size NPS 1-1/4.

2.5 WIRE

2.5.1 Tension Wire

Tension wire shall be Type I or Type II, Class 4 coating, in accordance with ASTM A 824.

2.6 ACCESSORIES

ASTM F 626. Ferrous accessories shall be zinc or aluminum coated. Truss rods shall be furnished for each terminal post. Truss rods shall be

provided with turnbuckles or other equivalent provisions for adjustment. Tie wire for attaching fabric to rails, braces, and posts shall be 9 gauge steel wire and match the coating of the fence fabric. The tie wires shall be a double loop and 6.5 inches in length. Miscellaneous hardware coatings shall conform to ASTM A 153/A 153M unless modified.

PART 3 EXECUTION

3.1 INSTALLATION

Fence shall be installed to the lines necessary to secure the work area for demolition in each cluster and grades indicated. Line posts shall be spaced equidistant at intervals not exceeding 10 feet. Terminal (corner, gate, and pull) posts shall be set at abrupt changes in vertical and horizontal alignment. Fabric shall be continuous between terminal posts; however, runs between terminal posts shall not exceed 500 feet.

3.2 POST INSTALLATION

3.2.1 Posts for Chain Link Fence

Posts shall generally be driven into the soil/pavement plumb and in alignment. Where solid rock is encountered with no overburden, posts shall be set to a minimum depth of 18 inches in rock. Where solid rock is covered with an overburden of soil or loose rock, posts shall be set to the minimum depth indicated on the drawing unless a penetration of 18 inches in solid rock is achieved before reaching the indicated depth, in which case depth of penetration shall terminate. All portions of posts set in rock shall be grouted. Portions of posts not set in rock shall be set in concrete from the rock to ground level. Posts set in concrete shall be set in holes not less than the diameter shown on the drawings. Diameters of holes in solid rock shall be at least 1 inch greater than the largest cross section of the post. Concrete and grout shall be thoroughly consolidated around each post, shall be free of voids and finished to form a dome. Concrete and grout shall be allowed to cure for 72 hours prior to attachment of any item to the posts. Line posts may be mechanically driven, for temporary fence construction only, if rock is not encountered. Driven posts shall be set to a minimum depth of 3 feet and shall be protected with drive caps when being set.

3.3 RAILS

3.3.1 Top Rail

Top rail shall be supported at each post to form a continuous brace between terminal posts. Where required, sections of top rail shall be joined using sleeves or couplings that will allow expansion or contraction of the rail. Top rail, if required for high security fence, shall be installed as indicated on the drawings.

3.4 BRACES AND TRUSS RODS

Braces and truss rods shall be installed as indicated and in conformance with the standard practice for the fence furnished. Horizontal (compression) braces and diagonal truss (tension) rods shall be installed on fences over 6 feet in height. A center brace or 2 diagonal truss rods shall be installed on 12 foot fences. Braces and truss rods shall extend from terminal posts to line posts. Diagonal braces shall form an angle of approximately 40 to 50 degrees with the horizontal. No bracing is required

on fences 6 feet high or less if a top rail is installed.

3.5 CHAIN LINK FABRIC

Chain link fabric shall be installed on the side of the post indicated. Fabric shall be attached to terminal posts with stretcher bars and tension bands. Bands shall be spaced at approximately 15 inch intervals. The fabric shall be installed and pulled taut to provide a smooth and uniform appearance free from sag, without permanently distorting the fabric diamond or reducing the fabric height. Fabric shall be fastened to line posts at approximately 15 inch intervals and fastened to all rails at approximately 24 inch intervals. Splicing shall be accomplished by weaving a single picket into the ends of the rolls to be joined.

3.6 GATE INSTALLATION

Gates shall be installed as necessary for access to the work site and at the locations shown. Hinged gates shall be mounted to swing as indicated. Latches, stops, and keepers shall be installed as required. Slide gates shall be installed as recommended by the manufacturer. Padlocks shall be attached to gates or gate posts with chains. All padlocks shall meet the requirements of ASTM F 883. Hinge pins, and hardware shall be welded or otherwise secured to prevent removal.

SECTION 13280A

ASBESTOS HAZARD CONTROL ACTIVITIES

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

- | | |
|------------|---|
| ANSI Z87.1 | (2003) Standard for Occupational and Educational Eye and Face Protection |
| ANSI Z88.2 | (1992) Respiratory Protection |
| ANSI Z9.2 | (2001) Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems |

ASTM INTERNATIONAL (ASTM)

- | | |
|-------------|--|
| ASTM D 1331 | (1989; R 2001) Surface and Interfacial Tension of Solutions of Surface-Active Agents |
| ASTM D 4397 | (2002) Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications |
| ASTM E 1368 | (2003) Visual Inspection of Asbestos Abatement Projects |

COMPRESSED GAS ASSOCIATION (CGA)

- | | |
|---------|---|
| CGA G-7 | (2003) Compressed Air for Human Respiration |
|---------|---|

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

- | | |
|----------|---|
| NFPA 701 | (2004) Fire Tests for Flame Propagation of Textiles and Films |
|----------|---|

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

- | | |
|--------------|---|
| NIOSH 94-113 | (1994; 4th Ed) NIOSH Manual of Analytical Methods |
|--------------|---|

NEW JERSEY ADMINISTRATIVE CODE (NJAC)

- | | |
|-------------|--|
| NJAC 5:16 | Asbestos Licenses and Permits |
| NJAC 5:23-8 | (2000) Asbestos Hazard Abatement Subcode |

Cornell-Dubilier Electronics Superfund Site - OU2

NJAC 7:26-1 et seq. (2002) Solid Waste Regulations - Asbestos

NJAC 7:26G-1 et seq. (2003) Hazardous Waste Regulations

NEW JERSEY STATUTES ANNOTATED (NJSA)

NJSA 34:5A-32 et seq. The Asbestos Control and Licensing Act

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2003) Safety and Health Requirements Manual

EP 1110-1-11 (1992) Asbestos Abatement Guideline Detail Sheets

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 340/1-90/018 (1990) Asbestos/NESHAP Regulated Asbestos Containing Materials Guidance

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.134 Respiratory Protection

29 CFR 1910.141 Sanitation

29 CFR 1910.147 Control of Hazardous Energy (Lock Out/Tag Out)

29 CFR 1926.1101 Asbestos

29 CFR 1926.32 Safety and Health Regulations for Construction - Definition

40 CFR 61 National Emission Standards for Hazardous Air Pollutants

40 CFR 763 Asbestos

42 CFR 84 Approval of Respiratory Protective Devices

49 CFR 107 Hazardous Materials Program Procedures

49 CFR 171 General Information, Regulations, and Definitions

49 CFR 172 Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements

49 CFR 173 Shippers - General Requirements for Shipments and Packagings

UNDERWRITERS LABORATORIES (UL)

UL 586 (1996; Rev thru Apr 2000) High-Efficiency, Particulate, Air Filter Units

1.2 DEFINITIONS

- a. Amended Water: Water containing a wetting agent or surfactant with a surface tension of at least 29 dynes per square centimeter when tested in accordance with ASTM D 1331.
- b. Asbestos-Containing Material (ACM): Any materials containing more than one percent asbestos.
- c. Authorized Person: Any person authorized by the Contractor and required by work duties to be present in the regulated areas.
- d. Building Inspector: Individual who inspects buildings for asbestos and has EPA Model Accreditation Plan (MAP) "Building Inspector" training; accreditation required by 40 CFR 763, Subpart E, Appendix C, has EPA/State certification/license as a "Building Inspector".
- e. Class I Asbestos Work: Activities defined by OSHA involving the removal of thermal system insulation (TSI) and surfacing ACM.
- f. Class II Asbestos Work: Activities defined by OSHA involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos - containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastic. Certain "incidental" roofing materials such as mastic, flashing and cements when they are still intact are excluded from Class II asbestos work. Removal of small amounts of these materials which would fit into a glovebag may be classified as a Class III job.
- g. Class III Asbestos Work: Activities defined by OSHA that involve repair and maintenance operations, where ACM, including TSI and surfacing ACM, is likely to be disturbed. Operations may include drilling, abrading, cutting a hole, cable pulling, crawling through tunnels or attics and spaces above the ceiling, where asbestos is actively disturbed or asbestos-containing debris is actively disturbed.
- h. Class IV Asbestos Work: Maintenance and custodial construction activities during which employees contact but do not disturb ACM and activities to clean-up dust, waste and debris resulting from Class I, II, and III activities. This may include dusting surfaces where ACM waste and debris and accompanying dust exists and cleaning up loose ACM debris from TSI or surfacing ACM following construction.
- i. Clean room: An uncontaminated room having facilities for the storage of employees' street clothing and uncontaminated materials and equipment.
- j. Competent Person: In addition to the definition in 29 CFR 1926.32 (f), a person who is capable of identifying existing asbestos hazards as defined in 29 CFR 1926.1101, selecting the appropriate control strategy, has the authority to take prompt corrective measures to eliminate them and has EPA Model Accreditation Plan (MAP) "Contractor/Supervisor" training; has EPA/State certification/license as a "Contractor/Supervisor".

- k. Contractor/Supervisor: Individual who supervises asbestos abatement work and has EPA Model Accreditation Plan "Contractor/Supervisor" training; has EPA/State certification as a "Contractor/Supervisor".
- l. Critical Barrier: One or more layers of plastic sealed over all openings into a regulated area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a regulated area from migrating to an adjacent area.
- m. Decontamination Area: An enclosed area adjacent and connected to the regulated area and consisting of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.
- n. Demolition: The wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products.
- o. Disposal Bag: A 6 mil thick, leak-tight plastic bag, pre-labeled in accordance with 29 CFR 1926.1101, used for transporting asbestos waste from containment to disposal site.
- p. Disturbance: Activities that disrupt the matrix of ACM, crumble or pulverize ACM, or generate visible debris from ACM. Disturbance includes cutting away small amounts of ACM, no greater than the amount which can be contained in 1 standard sized glovebag or waste bag, not larger than 60 inches in length and width in order to access a building component.
- q. Equipment Room or Area: An area adjacent to the regulated area used for the decontamination of employees and their equipment.
- r. Fiber: A fibrous particulate, 5 micrometers or longer, with a length to width ratio of at least 3 to 1.
- s. Friable ACM: A term defined in 40 CFR 61, Subpart M and EPA 340/1-90/018 meaning any material which contains more than 1 percent asbestos, as determined using the method specified in 40 CFR 763, Polarized Light Microscopy (PLM), that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.
- t. Glovebag: Not more than a 60 by 60 inch impervious plastic bag-like enclosure affixed around an asbestos-containing material, with glove-like appendages through which material and tools may be handled.
- u. High-Efficiency Particulate Air (HEPA) Filter: A filter capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter.
- v. Intact: ACM which has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix. Removal of "intact" asphaltic, resinous, cementitious products does not render the ACM non-intact simply by being separated into smaller pieces.

- w. Model Accreditation Plan (MAP): USEPA training accreditation requirements for persons who work with asbestos as specified in 40 CFR 763.
- x. Negative Initial Exposure Assessment: A demonstration by the Contractor to show that employee exposure during an operation is expected to be consistently below the OSHA Permissible Exposure Limits (PELs).
- y. NESHAP: National Emission Standards for Hazardous Air Pollutants. The USEPA NESHAP regulation for asbestos is at 40 CFR 61, Subpart M.
- z. Nonfriable ACM: A NESHAP term defined in 40 CFR 61, Subpart M and EPA 340/1-90/018 meaning any material containing more than 1 percent asbestos that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.
- aa. Nonfriable ACM (Category I): A NESHAP term defined in 40 CFR 61, Subpart E and EPA 340/1-90/018 meaning asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos.
- bb. Nonfriable ACM (Category II): A NESHAP term defined in 40 CFR 61, Subpart E and EPA 340/1-90/018 meaning any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos.
- cc. Permissible Exposure Limits (PELs):
 - (1) PEL-Time weighted average (TWA): Concentration of asbestos not in excess of 0.1 fibers per cubic centimeter of air (f/cc) as an 8 hour time weighted average (TWA).
 - (2) PEL-Excursion Limit: An airborne concentration of asbestos not in excess of 1.0 f/cc of air as averaged over a sampling period of 30 minutes.
- dd. Regulated Area: An OSHA term defined in 29 CFR 1926.1101 meaning an area established by the Contractor to demarcate areas where Class I, II, and III asbestos work is conducted; also any adjoining area where debris and waste from such asbestos work accumulate; and an area within which airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limit.
- ee. Removal: All operations where ACM is taken out or stripped from structures or substrates, and includes demolition operations.
- ff. Repair: Overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM attached to structures or substrates.
- gg. Surfacing ACM: Asbestos-containing material which contains more than 1% asbestos and is sprayed-on, troweled-on, or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

- hh. Thermal system insulation (TSI) ACM: ACM which contains more than 1% asbestos and is applied to pipes, fittings, boilers, breeching, tanks, ducts, or other interior structural components to prevent heat loss or gain or water condensation.
- ii. Transite: A generic name for asbestos cement wallboard and pipe.
- jj. Worker: Individual (not designated as the Competent Person or a supervisor) who performs asbestos work and has completed asbestos worker training required by 29 CFR 1926.1101, to include EPA Model Accreditation Plan (MAP) "Worker" training; accreditation if required by the OSHA Class of work to be performed or by the state where the work is to be performed.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Detailed Drawings; G, A/E

Descriptions, detailed drawings, and site layout to include worksite containment area(s), local exhaust systems locations, decontamination units, other temporary waste storage facility, access tunnels, location of temporary utilities (electrical, water, sewer) and boundaries of each regulated area.

SD-03 Product Data

Asbestos Waste Shipment Records; G
Weight Bills and Delivery Tickets; G

Waste shipment records, weight bills and delivery tickets.

Encapsulants; G
Respiratory Protection Program; G
Cleanup and Disposal; G

Manufacturer's catalog data for all materials and equipment to be used, including brand name, model, capacity, performance characteristics and any other pertinent information. Test results and certificates from the manufacturer of encapsulants substantiating compliance with performance requirements of this specification. Material Safety Data Sheets for all chemicals to be used onsite in the same format as implemented in the Contractor's HAZARD COMMUNICATION PROGRAM. Data shall include, but shall not be limited to, the following items:

- a. High Efficiency Filtered Air (HEPA) local exhaust equipment
- b. Vacuum cleaning equipment
- c. Pressure differential monitor for HEPA local exhaust equipment

- d. Air monitoring equipment
- e. Respirators
- f. Personal protective clothing and equipment
- g. Glovebags. Written manufacturer's proof that glovebags will not break down under expected temperatures and conditions.
- h. Duct Tape
- i. Disposal Containers
- j. Sheet Plastic
- k. Wetting Agent
- l. Strippable Coating
- m. Prefabricated Decontamination Unit
- n. Material Safety Data Sheets (for all chemicals proposed)

Qualifications; G

A written report providing evidence of qualifications for personnel, facilities and equipment assigned to the work.

Training Program

A copy of the written project site-specific training material as indicated in 29 CFR 1926.1101 that will be used to train onsite employees.

Licenses, Permits and Notifications; G

Licenses, permits, and notifications.

SD-06 Reports

Exposure Assessment and Air Monitoring; G

Initial exposure assessments, negative exposure assessments, air-monitoring results and documentation.

Local Exhaust System

Pressure differential recordings.

SD-07 Certificates

Local Exhaust System

Manufacturer's certifications showing compliance with ANSI Z9.2 for:

- a. Vacuums.

- b. Water filtration equipment.
- c. Ventilation equipment.
- d. Other equipment required to contain airborne asbestos fibers.

Encapsulants; G

Certificates stating that encapsulants meet the applicable specified performance requirements.

Medical Surveillance Requirements

Required medical certification and the Physician's written opinion.

1.4 DESCRIPTION OF WORK

This section covers all operations in which asbestos-containing materials (ACM) are encountered. These procedures and equipment are required to protect workers and building occupants from airborne asbestos fibers and ACM dust and debris. Activities include OSHA Class I and Class II work operations. This section also includes containment, storage, transportation and disposal of the generated ACM wastes. The Contractor shall submit Detailed Drawings in accordance with EP 1110-1-11 and as specified in the Submittals paragraph. When the detail sheets are not attached to this specification, the Contractor can get them from the web at:

<http://www.usace.army.mil/publications/eng-pamphlets/ep1110-1-11/toc.htm>

1.4.1 Abatement Work Tasks

The specific ACM to be abated is identified on the detailed plans and project drawings and in Table 1. A summary for each work task including the appropriate RESPONSE ACTION DETAIL SHEET (item to be abated and methods to be used) and SET-UP DETAIL SHEETS (containment techniques to include safety precautions and methods) is included in Table 1, "Individual Work Task Data Elements" at the end of this section.

1.4.2 Unexpected Discovery of Asbestos

For any previously untested building components suspected to contain asbestos and located in areas impacted by the work, the Contractor shall notify the Contracting Officer (CO) who will have the option of ordering up to 10 bulk samples to be obtained at the Contractor's expense and delivered to a laboratory accredited under the National Institute of Standards and Technology (NIST) "National Voluntary Laboratory Accreditation Program (NVLAP)" and analyzed by PLM. If the asbestos content is less than 10 percent, as determined by a method other than point counting, the asbestos content shall be verified by point counting. Any additional components identified as ACM that have been approved by the CO for removal shall be removed by the Contractor and will be paid for by an equitable adjustment to the contract price under the CONTRACT CLAUSE titled "changes". Sampling shall be conducted by personnel who have successfully completed the EPA Model Accreditation Plan (MAP) "Building Inspector" training course and is EPA/State certified/licensed as a "Building Inspector".

1.4.3 Wallboard/Joint Compound

Both composite samples of the wallboard and discrete samples of the components (wallboard and joint compound) have been tested. Composite samples of the wallboard system were tested and found to contain less than one percent asbestos. Discrete samples of the wallboard system were tested and found to contain less than one percent asbestos.

1.5 QUALIFICATIONS

1.5.1 Written Qualifications and Organization Report

The Contractor shall furnish a written qualifications and organization report providing evidence of qualifications of the Contractor, Contractor's Project Supervisor, Designated Competent Person, supervisors and workers; Designated IH; independent testing laboratory; all subcontractors to be used including disposal transportation and disposal facility firms, subcontractor supervisors, subcontractor workers; and any others assigned to perform asbestos abatement and support activities. The report shall include an organization chart showing the Contractor's staff organization chain of command and reporting relationship with all subcontractors. The report shall be signed by the Contractor, the Contractor's onsite project manager, Designated Competent Person, Designated IH, designated testing laboratory and the principals of all subcontractors to be used. The Contractor shall include the following statement in the report: "By signing this report I certify that the personnel I am responsible for during the course of this project fully understand the contents of 29 CFR 1926.1101, 40 CFR 61, Subpart M, and the federal, state and local requirements for those asbestos abatement activities that they will be involved in."

1.5.2 Specific Requirements

The Contractor shall designate in writing, personnel meeting the following qualifications:

1.5.2.1 Asbestos Abatement Contractor

The Contractor shall be certified/licensed by the New Jersey Department of Labor to perform asbestos-related activities.

1.5.2.2 Designated Competent Person

Evidence that the full-time Designated Competent Person is qualified in accordance with 29 CFR 1926.32 and 29 CFR 1926.1101, has EPA MAP "Contractor/Supervisor" training accreditation, has EPA/State certification/license as a "Contractor/Supervisor" and is experienced in the administration and supervision of asbestos abatement projects, including exposure assessment and monitoring, work practices, abatement methods, protective measures for personnel, setting up and inspecting asbestos abatement work areas, evaluating the integrity of containment barriers, placement and operation of local exhaust systems, ACM generated waste containment and disposal procedures, decontamination units installation and maintenance requirements, site safety and health requirements, notification of other employees onsite, etc. The Designated Competent Person shall be responsible for compliance with applicable federal, state and local requirements, the Contractor's Accident Prevention Plan (APP) and Asbestos Hazard Abatement Plan (AHAP). The Contractor shall submit, the "Contractor/Supervisor" course completion certificate and the

most recent certificate for required refresher training, EPA/State certification/license with the employee "Certificate of Worker Acknowledgment". The Contractor shall submit evidence that this person has a minimum of 2 years of on-the-job asbestos abatement experience relevant to OSHA competent person requirements. The Designated Competent Person shall be onsite at all times during the conduct of this project.

1.5.2.3 Project and Other Supervisors

Evidence that the Project Supervisor and other supervisors have EPA MAP "Contractor/Supervisor" training accreditation. The Contractor shall submit, the "Contractor/Supervisor" course completion certificate and the most recent certificate for required refresher training, EPA/State certification/license with the employee "Certificate of Worker Acknowledgment". The Contractor shall submit evidence that the Project Supervisor has a minimum of 2 years of on-the-job asbestos abatement experience relevant to project supervisor responsibilities and the other supervisors have a minimum of 1 year on-the-job asbestos abatement experience commensurate with the responsibilities they will have on this project.

1.5.2.4 Designated Industrial Hygienist

The Contractor shall provide the resume for the Certified Industrial Hygienist (CIH) selected to prepare the Contractor's AHAP, prepare and perform training, direct air monitoring and assist the Contractor's Competent Person in implementing and ensuring that safety and health requirements are complied with during the performance of all required work.

The Designated CIH shall be a person who is board certified in the practice of industrial hygiene as determined and documented by the American Board of Industrial Hygiene (ABIH), has EPA MAP "Contractor/Supervisor" training accreditation, has EPA/State certification/license, and has a minimum of 2 years of comprehensive experience in planning and overseeing asbestos abatement activities. The Contractor shall submit, the "Contractor/Supervisor" course completion certificate and the most recent certificate for required refresher training and EPA/State certification/license with the employee "Certificate of Worker Acknowledgment". The Designated IH shall be completely independent from the Contractor according to federal, state, or local regulations; that is, shall not be a Contractor's employee or be an employee or principal of a firm in a business relationship with the Contractor negating such independent status. A copy of the Designated IH's current valid ABIH certification shall be included. The Designated IH shall visit the site at least once every 2 weeks for the duration of asbestos activities and shall be available for emergencies. In addition, the Contractor shall submit resumes of additional IH's and industrial hygiene technicians (IHT) who will be assisting the Designated IH in performing onsite tasks. IHs and IHTs supporting the Designated IH shall have a minimum of 2 years of practical onsite asbestos abatement experience. The formal reporting relationship between the Designated IH and the support IHs and IHTs, the Designated Competent Person, and the Contractor shall be indicated.

1.5.2.5 Asbestos Abatement Workers

Asbestos abatement workers shall meet the requirements contained in 29 CFR 1926.1101, 40 CFR 61, Subpart M, and other applicable federal, state and local requirements. Worker training documentation shall be provided as required on the "Certificate of Workers Acknowledgment".

1.5.2.6 Worker Training and Certification of Worker Acknowledgment

Training documentation is required for each employee who will perform OSHA Class I, Class II, Class III, or Class IV asbestos abatement operations. Such documentation shall be submitted on a Contractor generated form titled "Certificate of Workers Acknowledgment", to be completed for each employee in the same format and containing the same information as the example certificate at the end of this section. Training course completion certificates (initial and most recent update refresher) required by the information checked on the form shall be attached.

1.5.2.7 Physician

The Contractor shall provide the resume of the physician who will or has performed the medical examinations and evaluations of the persons who will conduct the asbestos abatement work tasks. The physician shall be currently licensed by the state where the workers will be or have been examined, have expertise in pneumoconiosis and shall be responsible for the determination of medical surveillance protocols and for review of examination/test results performed in compliance with 29 CFR 1926.1101. The physician shall be familiar with the site's hazards and the scope of this project.

1.5.2.8 Independent Testing Laboratory

The Contractor shall identify the independent testing laboratory selected to perform the sample analyses and report the results. The testing laboratory shall be completely independent from the Contractor as recognized by federal, state or local regulations. Written verification of the following criteria, signed by the testing laboratory principal and the Contractor, shall be submitted:

(1) Phase contrast microscopy (PCM): The laboratory is fully equipped and proficient in conducting PCM of airborne samples using the methods specified by 29 CFR 1926.1101, OSHA method ID-160, the most current version of NIOSH 94-113 Method 7400. The laboratory shall be currently judged proficient (classified as acceptable) in counting airborne asbestos samples by PCM by successful participation in each of the last 4 rounds in the American Industrial Hygiene Association (AIHA) Proficiency Analytical Testing (PAT) Program or by participating in the AIHA PAT Program, and being judged proficient in counting samples.

(2) Polarized light microscopy (PLM): The laboratory is fully equipped and proficient in conducting PLM analyses of suspect ACM bulk samples in accordance with 40 CFR 763, Subpart E, Appendix E; the laboratory is currently accredited by NIST under the NVLAP for bulk asbestos analysis and will use analysts with demonstrated proficiency to conduct PLM analyses.

(3) Transmission electron microscopy (TEM): The laboratory is fully equipped and proficient in conducting TEM analysis of airborne samples using the mandatory method specified by 40 CFR 763, Subpart E, Appendix E; the laboratory is currently accredited by NIST under the NVLAP for airborne sample analysis of asbestos by TEM; the laboratory will use analysts with demonstrated proficiency under NVLAP.

(4) PCM/TEM: The laboratory is fully equipped and each analyst

is proficient in conducting PCM and TEM analysis of airborne samples using NIOSH 94-113 Method 7400 PCM and NIOSH 94-113 Method 7402 (TEM confirmation of asbestos content of PCM results) from the same filter.

1.5.2.9 Disposal Facility, Transporter

The Contractor shall provide written evidence that the landfill to be used is approved for asbestos disposal by the USEPA, state, and local regulatory agencies. Copies of signed agreements between the Contractor (including subcontractors and transporters) and the asbestos waste disposal facility to accept and dispose of all asbestos containing waste shall be provided. The Contractor and transporters shall meet the DOT requirements of 49 CFR 171, 49 CFR 172, and 49 CFR 173 as well as registration requirements of 49 CFR 107 and other applicable state or local requirements. The disposal facility shall meet the requirements of 40 CFR 61, Sections .154 or .155, as required in 40 CFR 61 150(b), and other applicable state or local requirements.

1.5.3 Federal, State or Local Citations on Previous Projects

The Contractor and all subcontractors shall submit a notarized statement, signed by an officer of the company, containing a record of any citations issued by Federal, State or local regulatory agencies relating to asbestos activities (including projects, dates, and resolutions); a list of penalties incurred through non-compliance with asbestos project specifications, including liquidated damages, overruns in scheduled time limitations and resolutions; and situations in which an asbestos-related contract has been terminated (including projects, dates, and reasons for terminations). If there are none, a negative declaration signed and notarized by an officer of the company shall be provided.

1.6 REGULATORY REQUIREMENTS

In addition to detailed requirements of this specification, work performed under this contract shall comply with EM 385-1-1, applicable federal, state, and local laws, ordinances, criteria, rules and regulations regarding handling, storing, transporting, and disposing of asbestos waste materials. Matters of interpretation of standards shall be submitted to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements shall apply. The following state and local laws, rules and regulations regarding demolition, removal, encapsulation, construction alteration, repair, maintenance, renovation, spill/emergency cleanup, housekeeping, handling, storing, transporting and disposing of asbestos material apply: NJAC 5:23-8, NJAC 7:26-1 et seq., and NJAC 7:26G-1 et seq..

1.7 SAFETY AND HEALTH PROGRAM AND PLANS

The Contractor shall prepare a written comprehensive site-specific Accident Prevention Plan (APP) at least 30 days prior to the preconstruction conference. The APP shall be in accordance with the format and requirements in Appendix A of EM 385-1-1. The APP shall incorporate an Asbestos Hazard Abatement Plan (AHAP), and Activity Hazard Analyses (AHAs) as separate appendices into one site-specific document. The APP shall take into consideration all the individual asbestos abatement work tasks identified in Table 1. See Sections 01351 SAFETY, HEALTH AND EMERGENCY RESPONSE (HTRW/UST) and 01525 SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS

for additional requirements.

1.7.1 Asbestos Hazard Abatement Plan Appendix

The AHAP shall include, but not be limited to, the following:

- a. The personal protective equipment to be used;
- b. The location and description of regulated areas including clean and dirty areas, access tunnels, and decontamination unit (clean room, shower room, equipment room, storage areas;
- c. Initial exposure assessment in accordance with 29 CFR 1926.1101;
- d. Level of supervision;
- e. Method of notification of other employers at the worksite;
- f. Abatement method to include containment and control procedures;
- g. Interface of trades;
- h. Sequencing of asbestos related work;
- i. Storage and disposal procedures and plan;
- j. Type of wetting agent and asbestos encapsulant;
- k. Location of local exhaust equipment;
- l. Air monitoring methods (personal, environmental and clearance);
- m. Bulk sampling and analytical methods (if required);
- n. A detailed description of the method to be employed in order to control the spread of ACM wastes and airborne fiber;
- o. Fire and medical emergency response procedures;
- p. The security procedures to be used for all regulated areas.

1.7.2 Activity Hazard Analyses Appendix

AHAs for each major phase of work, shall be submitted and updated during the project. The AHAs format shall be in accordance with Figure 1-1 of EM 385-1-1. The analysis shall define the activities to be performed for a major phase of work, identify the sequence of work, the specific hazards anticipated, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable level. Work shall not proceed on that phase until the AHA has been accepted and a preparatory meeting has been conducted by the Contractor to discuss its contents with everyone engaged in the activities, including the onsite Government representatives. The AHAs shall be continuously reviewed and, when appropriate, modified to address changing site conditions or operations.

1.8 PRECONSTRUCTION CONFERENCE

The Contractor and the Contractor's Designated Competent Person, Project Supervisor, and Designated IH shall meet with the Contracting Officer (CO)

prior to beginning work at a safety preconstruction conference to discuss the details of the Contractor's submitted APP to include the AHAP and AHAS appendices. Deficiencies in the APP will be discussed. Onsite work shall not begin until the APP has been accepted.

1.9 SECURITY

Each regulated area shall be locked and secured to prevent unauthorized entry during non-working hours. A log book shall be kept documenting entry into and out of the regulated area. Entry into regulated areas shall only be by personnel authorized by the Contractor and the CO. Personnel authorized to enter regulated areas shall be trained, medically evaluated, and wear the required personal protective equipment.

1.10 MEDICAL SURVEILLANCE REQUIREMENTS

Medical surveillance requirements shall conform to 29 CFR 1926.1101. Asbestos workers shall be enrolled in a medical surveillance program that meets 29 CFR 1926.1101 (m) requirements and other pertinent state or local requirements. This requirement shall have been satisfied within the last 12 months.

1.11 TRAINING PROGRAM

The Contractor shall establish a training program as specified by EPA MAP, training requirements at 40 CFR 763, the State of New Jersey regulation nos. NJSA 34:5A-32 et seq. and NJAC 5:16, OSHA requirements at 29 CFR 1926.1101 (k) (9). Contractor employees shall complete the required training for the type of work they are to perform and such training shall be documented and provided to the CO.

a. Class I and II operations 32 hours Asbestos Worker Training

Prior to commencement of work the Contractor's Designated IH and Competent Person shall instruct each worker about:

- a. The hazards and health effects of the specific types of ACM to be abated; and
- b. The content and requirements of the Contractor's APP to include the AHAP and AHAS and site-specific safety and health precautions.

1.12 RESPIRATORY PROTECTION PROGRAM

The Contractor's Designated IH shall establish in writing, and implement a respiratory protection program in accordance with 29 CFR 1926.1101, 29 CFR 1910.134, and ANSI Z88.2. The Contractor's Designated IH shall establish minimum respiratory protection requirements based on measured or anticipated levels of airborne asbestos fiber concentrations.

1.12.1 Respiratory Fit Testing

The Contractor's Designated IH shall conduct a qualitative or quantitative fit test conforming to Appendix A of 29 CFR 1910.134 for each worker required to wear a respirator, and any authorized visitors who enter a regulated area where respirators are required to be worn. A respirator fit test shall be performed prior to initially wearing a respirator and every 12 months thereafter. If physical changes develop that will affect the fit, a new fit test shall be performed. Functional fit checks shall be

performed each time a respirator is put on and in accordance with the manufacturer's recommendation.

1.12.2 Respirator Selection and Use Requirements

The Contractor shall provide respirators, and ensure that they are used as required by 29 CFR 1926.1101 and in accordance with CGA G-7 and the manufacturer's recommendations. Respirators shall be approved by the National Institute for Occupational Safety and Health NIOSH, under the provisions of 42 CFR 84, for use in environments containing airborne asbestos fibers. For air-purifying respirators, the particulate filter shall be high-efficiency particulate air (HEPA)/(P-100). The initial respirator selection and the decisions regarding the upgrading or downgrading of respirator type shall be made by the Contractor's Designated IH based on the measured or anticipated airborne asbestos fiber concentrations to be encountered.

1.13 LICENSES, PERMITS AND NOTIFICATIONS

Necessary licenses, permits and notifications shall be obtained in conjunction with the project's asbestos abatement, transportation and disposal actions and timely notification furnished of such actions as required by federal, state, regional, and local authorities. The Contractor shall notify the USEPA Region 2 (Division of Enforcement and Compliance Assistance - Air Compliance Branch), the NJDEP (Division of Solid and Hazardous Waste), the NJDCA (Division of Codes and Standards - Asbestos/Lead Unit), the NJDOL (Division of Public Safety and Occupational Safety and Health - Asbestos Control and Licensing Section), the NJDHSS (Indoor Environments Program - Consumer and Environmental Health Services), and the CO in writing, at least 10 days prior to the commencement of work, in accordance with 40 CFR 61, Subpart M, and state and local requirements to include the mandatory "Notification of Demolition and Renovation Record" form and other required notification documents. Notification shall be by Certified Mail, Return Receipt Requested. The Contractor shall furnish copies of the receipts to the CO, in writing, prior to the commencement of work. Local fire department shall be notified 3 days before fireproofing material is removed from a building and the notice shall specify whether or not the material contains asbestos. The Contractor is responsible for the associated fees/costs for licenses, permits, and notifications.

1.14 PERSONAL PROTECTIVE EQUIPMENT

Three complete sets of personal protective equipment shall be made available to the CO and authorized visitors for entry into the regulated area. The CO and authorized visitors shall be provided with training equivalent to that provided to Contractor employees in the selection, fitting, and use of personal protective equipment and the site safety and health requirements. Contractor workers shall be provided with personal protective clothing and equipment and the Contractor shall ensure that it is worn properly. The Contractor's Designated IH and Designated Competent Person shall select and approve all the required personal protective clothing and equipment.

1.14.1 Respirators

Respirators shall be in accordance with paragraph RESPIRATORY PROTECTION PROGRAM. If entry into a regulated area requires respiratory protection, the CO and authorized visitors will not be allowed to enter without appropriate respiratory medical clearances, training, and fit testing.

1.14.2 Whole Body Protection

Personnel exposed to or having the potential to be exposed to airborne concentrations of asbestos that exceed the PELs, or for all OSHA Classes of work for which a required negative exposure assessment is not produced, shall be provided with whole body protection and such protection shall be worn properly. Disposable whole body protection shall be disposed of as asbestos contaminated waste upon exiting from the regulated area. Reusable whole body protection worn shall be either disposed of as asbestos contaminated waste upon exiting from the regulated area or be properly laundered in accordance with 29 CFR 1926.1101. The Contractor's Designated Competent Person, in consultation with the Designated IH, has the authority to take immediate action to upgrade or downgrade whole body protection when there is an immediate danger to the health and safety of the wearer.

1.14.2.1 Coveralls

Disposable-impermeable coveralls with a zipper front shall be provided. Sleeves shall be secured at the wrists, and foot coverings secured at the ankles.

1.14.2.2 Gloves

Gloves shall be provided to protect the hands where there is the potential for hand injuries (i.e., scrapes, punctures, cuts, etc.).

1.14.2.3 Foot Coverings

Cloth socks shall be provided and worn next to the skin. Footwear, as required by OSHA and EM 385-1-1, that is appropriate for safety and health hazards in the area shall be worn. Reusable footwear removed from the regulated area shall be thoroughly decontaminated or disposed of as ACM waste.

1.14.2.4 Head Covering

Hood type disposable head covering shall be provided. In addition, protective head gear (hard hats) shall be provided as required. Hard hats shall only be removed from the regulated area after being thoroughly decontaminated.

1.14.2.5 Protective Eye Wear

Eye protection shall be provided, when operations present a potential eye injury hazard, and shall meet the requirements of ANSI Z87.1.

1.15 HYGIENE FACILITIES AND PRACTICES

The Contractor shall establish a decontamination area for the decontamination of employees, material and equipment. The Contractor shall ensure that employees enter and exit the regulated area through the decontamination area.

1.15.1 3-Stage Decontamination Area

A temporary negative pressure decontamination unit that is adjacent and attached in a leak-tight manner to the regulated area shall be provided. The decontamination unit shall have an equipment room and a clean room

separated by a shower that complies with 29 CFR 1910.141, unless the Contractor can demonstrate that such facilities are not feasible. Equipment and surfaces of containers filled with ACM shall be cleaned prior to removing them from the equipment room or area. Two separate lockers shall be provided for each asbestos worker, one in the equipment room and one in the clean room. The Contractor shall provide a minimum of 2 showers. Wastewater shall be collected and filtered to remove asbestos contamination. Filters and residue shall be disposed of as asbestos contaminated material. Wastewater filters shall be installed in series with the first stage pore size of 20 microns and the second stage pore size of 5 microns. The floor of the decontamination unit's clean room shall be kept dry and clean at all times. Proper housekeeping and hygiene requirements shall be maintained. Soap, hot and cold water, and towels shall be provided for showering, washing and drying. Any cloth towels provided shall be disposed of as ACM waste or shall be laundered in accordance with 29 CFR 1926.1101.

1.15.2 Single Stage Decontamination Area

A decontamination area (equipment room/area) shall be provided for Class I work involving less than 25 feet or 10 square feet of TSI or surfacing ACM, and for Class II asbestos work operations where exposures exceed the PELs or where there is no negative exposure assessment. The equipment room or area shall be adjacent to the regulated area for the decontamination of employees, material, and their equipment which could be contaminated with asbestos. The area shall be covered by an impermeable drop cloth on the floor or horizontal working surface. The area must be of sufficient size to accommodate cleaning of equipment and removing personal protective equipment without spreading contamination beyond the area.

1.15.3 Decontamination Area Exit Procedures

The Contractor shall ensure that the following procedures are followed:

- a. Before leaving the regulated area, remove all gross contamination and debris from work clothing using a HEPA vacuum.
- b. Employees shall remove their protective clothing in the equipment room and deposit the clothing in labeled impermeable bags or containers (see Detail Sheets 9A and 14) for disposal and/or laundering.
- c. Employees shall not remove their respirators until showering.
- d. Employees shall shower prior to entering the clean room. If a shower has not been located between the equipment room and the clean room or the work is performed outdoors, the Contractor shall ensure that employees engaged in Class I asbestos jobs: a) Remove asbestos contamination from their work suits in the equipment room or decontamination area using a HEPA vacuum before proceeding to a shower that is not adjacent to the work area; or b) Remove their contaminated work suits in the equipment room, without cleaning worksuits, and proceed to a shower that is not adjacent to the work area.

1.15.4 Smoking

Smoking, if allowed by the Contractor, shall only be permitted in designated areas approved by the CO.

1.16 REGULATED AREAS

All Class I and II asbestos work shall be conducted within regulated areas.

The regulated area shall be demarcated to minimize the number of persons within the area and to protect persons outside the area from exposure to airborne asbestos. Access to regulated areas shall be limited to authorized persons. The Contractor shall control access to regulated areas, ensure that only authorized personnel enter, and verify that Contractor required medical surveillance, training and respiratory protection program requirements are met prior to allowing entrance.

1.17 WARNING SIGNS AND TAPE

Warning signs and tape printed in English and the language(s) of the asbestos abatement supervisor and works, shall be provided at the regulated boundaries and entrances to regulated areas. Signs shall be located to allow personnel to read the signs and take the necessary protective steps required before entering the area. Warning signs, as shown and described in DETAIL SHEET 11, and displaying the following legend in the lower panel:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

See DETAIL SHEET 11 and DETAIL SHEET 15.

Decontamination unit signage shall be as shown and described on DETAILED SHEET 15.

1.18 WARNING LABELS

Warning labels shall be affixed to all asbestos disposal containers, asbestos materials, scrap, waste debris, and other products contaminated with asbestos. Containers with preprinted warning labels conforming to 29 CFR 1926.1101 requirements are acceptable.

1.19 LOCAL EXHAUST SYSTEM

Local exhaust units shall conform to ANSI Z9.2 and 29 CFR 1926.1101. Filters on local exhaust system equipment shall conform to ANSI Z9.2 and UL 586. Filter shall be UL labeled.

1.20 TOOLS

Vacuums shall be equipped with HEPA filters, of sufficient capacity and necessary capture velocity at the nozzle or nozzle attachment to efficiently collect, transport and retain the ACM waste material. Power tools shall not be used to remove ACM unless the tool is equipped with effective, integral HEPA filtered exhaust ventilation capture and collection system. Reusable tools shall be thoroughly decontaminated prior to being removed from regulated areas.

1.21 RENTAL EQUIPMENT

If rental equipment is to be used, written notification shall be provided to the rental agency, concerning the intended use of the equipment, the possibility of asbestos contamination of the equipment and the steps that

will be taken to decontaminate such equipment.

1.22 AIR MONITORING EQUIPMENT

The Contractor's Designated IH shall approve air monitoring equipment. The equipment shall include, but shall not be limited to:

- a. High-volume sampling pumps that can be calibrated and operated at a constant airflow up to 16 liters per minute.
- b. Low-volume, battery powered, body-attachable, portable personal pumps that can be calibrated to a constant airflow up to approximately 3.5 liters per minute, and a self-contained rechargeable power pack capable of sustaining the calibrated flow rate for a minimum of 10 hours. The pumps shall also be equipped with an automatic flow control unit which shall maintain a constant flow, even as filter resistance increases due to accumulation of fiber and debris on the filter surface.
- c. Single use standard 25 mm diameter cassette, open face, 0.8 micron pore size, mixed cellulose ester membrane filters and cassettes with 50 mm electrically conductive extension cowl, and shrink bands for personal air sampling.
- d. Single use standard 25 mm diameter cassette, open face, 0.45 micron pore size, mixed cellulose ester membrane filters and cassettes with 50 mm electrically conductive cowl, and shrink bands when conducting environmental area sampling using NIOSH 94-113 Methods 7400 and 7402, (and the transmission electric microscopy method specified at 40 CFR 763 if required).
- e. A flow calibrator capable of calibration to within plus or minus 2 percent of reading over a temperature range of minus 4 to plus 140 degrees F and traceable to a NIST primary standard.

1.23 EXPENDABLE SUPPLIES

1.23.1 Glovebag

Glovebags shall be provided as described in 29 CFR 1926.1101. The glovebag assembly shall be 6 mil thick plastic, prefabricated and seamless at the bottom with preprinted OSHA warning label.

1.23.2 Duct Tape

Industrial grade duct tape of appropriate widths suitable for bonding sheet plastic and disposal containers.

1.23.3 Disposal Containers

Leak-tight (defined as solids, liquids, or dust that cannot escape or spill out) disposal containers shall be provided for ACM wastes as required by 29 CFR 1926.1101. Disposal containers can be in the form of:

- a. Disposal Bags
- b. Fiberboard Drums

1.23.4 Sheet Plastic

Sheet plastic shall be polyethylene of 6 mil minimum thickness and shall be provided in the largest sheet size necessary to minimize seams. Film shall be clear or frosted and conform to ASTM D 4397, except as specified below:

1.23.4.1 Flame Resistant

Where a potential for fire exists, flame-resistant sheets shall be provided. Film shall be frosted and shall conform to the requirements of NFPA 701.

1.23.4.2 Reinforced

Reinforced sheets shall be provided where high skin strength is required, such as on floors, and where it constitutes the only barrier between the regulated area and the outdoor environment. The sheet stock shall consist of translucent, nylon-reinforced or woven-polyethylene thread laminated between 2 layers of polyethylene film. Film shall meet flame resistant standards of NFPA 701.

1.23.5 Mastic Removing Solvent

Mastic removing solvent shall be nonflammable and shall not contain methylene chloride, glycol ether, or halogenated hydrocarbons. Solvents used onsite shall have a flash point greater than 140 degrees F.

1.23.6 Leak-tight Wrapping

Two layers of 6 mil minimum thick polyethylene sheet stock shall be used for the containment of removed asbestos-containing components or materials such as reactor vessels, large tanks, boilers, insulated pipe segments and other materials too large to be placed in disposal bags as described in DETAIL SHEET 9B. Upon placement of the ACM component or material, each layer shall be individually leak-tight sealed with duct tape.

1.23.7 Viewing Inspection Window

Where feasible, a minimum of 1 clear, 1/8 inch thick, acrylic sheet, 18 by 24 inches, shall be installed as a viewing inspection window at eye level on a wall in each containment enclosure. The windows shall be sealed leak-tight with industrial grade duct tape.

1.23.8 Wetting Agents

Amended water shall meet the requirements of ASTM D 1331. Removal encapsulant (a penetrating encapsulant) shall be provided when conducting removal abatement activities that require a longer removal time or are subject to rapid evaporation of amended water. The removal encapsulant shall be capable of wetting the ACM and retarding fiber release during disturbance of the ACM greater than or equal to that provided by amended water. Performance requirements for penetrating encapsulants are specified in paragraph ENCAPSULANTS.

1.23.9 Strippable Coating

Strippable coating in aerosol cans shall be used to adhere to surfaces and to be removed cleanly by stripping, at the completion of work.

PART 2 PRODUCTS

2.1 ENCAPSULANTS

Encapsulants shall conform to USEPA requirements, shall contain no toxic or hazardous substances and no solvent.

2.2 ENCASEMENT PRODUCTS

Encasement shall consist of primary cellular polymer coat, polymer finish coat, and any other finish coat as approved by the CO.

2.3 RECYCLABLE MATERIALS

Recyclable materials shall conform to EPA requirements.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

Asbestos abatement work shall be performed according to the contract drawings, this specification, and federal, state, and local regulations. If there are conflicts between the contract documents and regulatory requirements, the most stringent requirements will be followed. The Contractor shall use the engineering controls and work practices required in 29 CFR 1926.1101(g) in all operations regardless of the levels of exposure. Personnel shall wear and utilize protective clothing and equipment. The Contractor shall not permit eating, smoking, drinking, chewing or applying cosmetics in the regulated area. Personnel of other trades, shall not be exposed at any time to airborne concentrations of asbestos unless all the administrative and personal protective provisions of the Contractor's APP are complied with. Power to the regulated area shall be locked-out and tagged in accordance with 29 CFR 1910.147, and temporary electrical service with ground fault circuit interrupters shall be provided as needed. Temporary electrical service shall be disconnected when necessary for wet removal. The Contractor shall stop abatement work in the regulated area immediately when the airborne total fiber concentration: (1) equals or exceeds 0.01 f/cc, or the pre-abatement concentration, whichever is greater, outside the regulated area; or (2) equals or exceeds 1.0 f/cc inside the regulated area. The Contractor shall correct the condition to the satisfaction of the CO, including visual inspection and air sampling. Work shall resume only upon notification by the CO. Corrective actions shall be documented.

3.2 PROTECTION OF ADJACENT WORK OR AREAS TO REMAIN

Asbestos abatement shall be performed without damage to or contamination of adjacent work or area. Where such work or area is damaged or contaminated, it shall be restored to its original condition or decontaminated by the Contractor at no expense to the Government. When spills occur, work shall stop in all effected areas immediately and the spill shall be cleaned. When satisfactory visual inspection and air sampling analysis results are obtained and have been evaluated by the Contractor's Designated IH and the CO, work shall proceed.

3.3 OBJECTS

3.3.1 Removal of Mobile Objects

The property owner will remove furniture and equipment from the area of work before work begins. If furniture and equipment can not be removed from the area before work begins, cleaning and storage and reinstallation of furniture and equipment located in each abatement area shall be required. Furnishings and equipment shall be precleaned using HEPA filtered vacuum followed by wet wiping. These objects shall be removed to an area or site designated on by the CO, and stored. Carpets, draperies, and other items which may not be suitable for onsite wet cleaning methods shall be disposed of as asbestos contaminated material].

3.3.2 Stationary Objects

Stationary objects, furniture, and equipment, shall remain in place and shall be precleaned using HEPA vacuum followed by adequate wet wiping. Stationary objects and furnishings shall be covered with 2 layers of polyethylene and edges sealed with duct tape.

3.4 BUILDING VENTILATION SYSTEM AND CRITICAL BARRIERS

Building ventilation system supply and return air ducts in a regulated area shall be shut down and isolated by lockable switch or other positive means in accordance with 29 CFR 1910.147n and will be isolated by airtight seals to prevent the spread of contamination throughout the system. The airtight seals shall consist of air-tight rigid covers for building ventilation supply and exhaust grills where the ventilation system is required to remain in service during abatement and 2 layers of polyethylene for all other openings. Edges to wall, ceiling and floor surfaces shall be sealed with industrial grade duct tape.

3.5 PRECLEANING

Surfaces to remain in the work area shall be cleaned by HEPA vacuum and adequately wet wiped prior to establishment of containment.

3.6 METHODS OF COMPLIANCE

3.6.1 Mandated Practices

The specific abatement techniques and items identified shall be detailed in the Contractor's AHAP. The Contractor shall use the following engineering controls and work practices in all operations, regardless of the levels of exposure:

- a. Vacuum cleaners equipped with HEPA filters.
- b. Wet methods or wetting agents except where it can be demonstrated that the use of wet methods is unfeasible due to the creation of electrical hazards, equipment malfunction, and in roofing.
- c. Prompt clean-up and disposal.
- d. Inspection and repair of polyethylene.
- e. Cleaning of equipment and surfaces of containers prior to removing them from the equipment room or area.

3.6.2 Control Methods

The Contractor shall use the following control methods:

- a. Local exhaust ventilation equipped with HEPA filter;
- b. Enclosure or isolation of processes producing asbestos dust;
- c. Where the feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PELs, the Contractor shall use them to reduce employee exposure to the lowest levels attainable and shall supplement them by the use of respiratory protection.

3.6.3 Unacceptable Practices

The following work practices shall not be used:

- a. High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.
- b. Compressed air used to remove asbestos containing materials, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air.
- c. Dry sweeping, shoveling, or other dry clean up.
- d. Employee rotation as a means of reducing employee exposure to asbestos.

3.6.4 Class I Work Procedures

In addition to requirements of paragraphs Mandated Practices and Control Methods, the following engineering controls and work practices shall be used:

- a. A Competent Person shall supervise the installation and operation of the control methods.
- b. For jobs involving the removal of more than 25 feet or 10 square feet of TSI or surfacing material, the Contractor shall place critical barriers over all openings to the regulated area.
- c. HVAC systems shall be isolated in the regulated area by sealing with a double layer of plastic or air-tight rigid covers.
- d. Impermeable dropcloths (6 mil or greater thickness) shall be placed on surfaces beneath all removal activity.
- e. Where a negative exposure assessment has not been provided or where exposure monitoring shows the PEL was exceeded, the regulated area shall be ventilated with a HEPA unit and employees must use PPE.

3.6.5 Specific Control Methods for Class I Work

3.6.5.1 Negative Pressure Enclosure (NPE) System

The NPE system shall be as shown in SETUP DETAIL SHEETS 3, 4, and 8. The system shall provide at least 4 air changes per hour inside the containment. The local exhaust unit equipment shall be operated 24 hours per day until the containment is removed. The NPE shall be smoke tested for leaks at the beginning of each shift and be sufficient to maintain a minimum pressure differential of minus 0.02 inch of water column relative to adjacent, unsealed areas. Pressure differential shall be monitored continuously, 24 hours per day, with an automatic manometric recording instrument and Records shall be provided daily on the same day collected to the CO. The CO shall be notified immediately if the pressure differential falls below the prescribed minimum. The building ventilation system shall not be used as the local exhaust system for the regulated area. The NPE shall terminate outdoors unless an alternate arrangement is allowed by the CO. All filters used shall be new at the beginning of the project and shall be periodically changed as necessary and disposed of as ACM waste.

3.6.5.2 Glovebag Systems

Glovebags shall be used without modification, smoke-tested for leaks, and completely cover the circumference of pipe or other structures where the work is to be done. Glovebags shall be used only once and shall not be moved. Glovebags shall not be used on surfaces that have temperatures exceeding 150 degrees F. Prior to disposal, glovebags shall be collapsed using a HEPA vacuum. Before beginning the operation, loose and friable material adjacent to the glovebag operation shall be wrapped and sealed in 2 layers of plastic or otherwise rendered intact. At least 2 persons shall perform glovebag removal. Asbestos regulated work areas shall be established as shown on the detailed drawings and plans and in Table 1 for glovebag abatement. Designated boundary limits for the asbestos work shall be established with rope or other continuous barriers and all other requirements for asbestos control areas shall be maintained, including area signage and boundary warning tape as specified in 29 CFR 1926.1101.

- a. The Contractor shall attach HEPA vacuum systems to the bag to prevent collapse during removal of ACM.
- b. The negative pressure glove boxes shall be fitted with gloved apertures and a bagging outlet and constructed with rigid sides from metal or other material which can withstand the weight of the ACM and water used during removal. A negative pressure shall be created in the system using a HEPA filtration system. The box shall be smoke tested for leaks prior to each use.

3.6.5.3 Mini-Enclosures

A mini-containment (small walk-in enclosure) to accommodate no more than 2 persons, may be used if the disturbance or removal can be completely contained by the enclosure. The mini-enclosure shall be inspected for leaks and smoke tested before each use. Air movement shall be directed away from the employee's breathing zone within the mini-enclosure.

3.6.5.4 Wrap and Cut Operation

Prior to cutting pipe, the asbestos-containing insulation shall be wrapped with polyethylene and securely sealed with duct tape to prevent asbestos

becoming airborne as a result of the cutting process. The following steps shall be taken: install glovebag, strip back sections to be cut 6 inches from point of cut, and cut pipe into manageable sections.

3.6.6 Class II Work

In addition to the requirements of paragraphs Mandated Practices and Control Methods, the following engineering controls and work practices shall be used:

- a. A Competent Person shall supervise the work.
- b. For indoor work, critical barriers shall be placed over all openings to the regulated area.
- c. Impermeable dropcloths shall be placed on surfaces beneath all removal activity.

3.6.7 Specific Control Methods for Class II Work

3.6.7.1 Vinyl and Asphalt Flooring Materials

Resilient sheeting shall be removed by adequately wet methods. Tiles shall be removed intact (if possible); wetting is not required when tiles are heated and removed intact. Flooring or its backing shall not be sanded. Scraping of residual adhesive and/or backing shall be performed using wet methods. Mechanical chipping is prohibited unless performed in a negative pressure enclosure. Dry sweeping is prohibited. The Contractor shall use vacuums equipped with HEPA filter, disposable dust bag, and metal floor tool (no brush) to clean floors.

3.6.7.2 Roofing Material

Roofing materials which contain ACM as described in 29 CFR 1926.1101 (g)(8)(ii) shall be removed in an intact state. Wet methods shall be used to remove roofing materials that are not intact, or that will be rendered not intact during removal, unless such wet methods are not feasible or will create safety hazards. When removing built-up roofs, with asbestos-containing roofing felts and an aggregate surface, using a power roof cutter, all dust resulting from the cutting operations shall be collected by a HEPA dust collector, or shall be HEPA vacuumed by vacuuming along the cut line. Asbestos-containing roofing material shall not be dropped or thrown to the ground, but shall be lowered to the ground via covered, dust-tight chute, crane, hoist or other method approved by the CO. Any ACM that is not intact shall be lowered to the ground as soon as practicable, but not later than the end of the work shift. While the material remains on the roof it shall be kept wet or placed in an impermeable waste bag or wrapped in plastic sheeting. Intact ACM shall be lowered to the ground as soon as practicable, but not later than the end of the work shift. Unwrapped material shall be transferred to a closed receptacle. Critical barriers shall be placed over roof level heating and ventilation air intakes.

3.6.7.3 Cementitious Siding and Shingles or Transite Panels

When removing cementitious asbestos-containing siding, shingles or transite panels the Contractor shall use the following work practices shown in RESPONSE ACTION DETAIL SHEET 81. Intentionally cutting, abrading or breaking is prohibited. Each panel or shingle shall be sprayed with

amended water prior to removal. Nails shall be cut with flat, sharp instruments. Unwrapped or unbagged panels or shingles shall be immediately lowered to the ground via covered dust-tight chute, crane or hoist, or placed in an impervious waste bag or wrapped in plastic sheeting and lowered to the ground no later than the end of the work shift.

3.6.7.4 Gaskets

Gaskets shall be thoroughly wetted with amended water prior to removal and immediately placed in a disposal container. If a gasket is visibly deteriorated and unlikely to be removed intact, removal shall be undertaken within a glovebag. Any scraping to remove residue shall be performed wet.

3.6.8 Methods for Asphaltic Wrap

Removal or disturbance of pipeline asphaltic wrap shall be performed using wet methods.

3.6.9 Class I Asbestos Work Response Action Detail Sheets

The following Class I Asbestos Work Response Action Detail Sheet is specified on Table 1 for each individual work task to be performed (refer to USACE document EP 1110-1-11):

- a. Pipe Insulation (Using a Glovebag): See Sheet 87
- b. Horizontal Pipe Insulation (Using a Containment Area): See Sheet 88
- c. Pipe Insulation (Using a Mini-Containment Area): See Sheet 89
- d. Storage Tank and Boiler Breeching Insulation: See Sheet 93.
Storage tanks and boilers shall be valved off and allowed a sufficient amount of time to cool down prior to abatement work. Insulation shall be sprayed with a mist of amended water or removal encapsulant. Amended water or removal encapsulant shall be allowed to saturate material to substrate. Cover jackets shall be slit at seams, and sections removed and hand-placed in a polyethylene disposable bag. Exposed surfaces shall be continuously sprayed with amended water to minimize airborne dust. Insulation on tanks and boiler breeching shall not be allowed to drop to the floor. Lagging on piping and insulation on fittings shall be removed. A penetrating encapsulant shall be sprayed on all exposed tank, boiler and boiler breeching surfaces.
- e. Pipe and Fitting Insulation (using Glovebag): See Sheet 86
- f. Storage Tank and Boiler Breeching: See Sheet 92

3.6.10 Class II Asbestos Work Response Action Detail Sheets

The following Class II Asbestos Work Response Action Detail Sheet is specified on Table 1 for each individual work task to be performed (refer to USACE document EP 1110-1-11):

- a. Vinyl or Vinyl Asbestos Tile Adhered to Concrete Floor System by Asbestos-Containing Adhesive: See Sheet 56
- b. Vinyl or Vinyl Asbestos Tile Adhered to Wood Floor System by

Asbestos Containing Adhesive: See Sheet 60

- c. Vinyl Asbestos Tile Adhered to Concrete Floor System by Asbestos Containing Adhesive: See Sheet 57
- d. Vinyl Asbestos Tile Adhered to Concrete Floor System by Asbestos Free Adhesive: See Sheet 58
- e. Vinyl Asbestos Tile and Chemical Dissolution of Asbestos-Containing Adhesives on Concrete Floor System: See Sheet 59
- f. Vinyl Asbestos Tile Adhered to Wood Floor System by Asbestos-Containing Adhesive: See Sheet 61
- g. Vinyl Asbestos Tile Adhered to Wood Floor System by Asbestos Free Adhesive: See Sheet 62
- h. Sheet Flooring Adhered Wood Floor System: See Sheet 63
- i. Asbestos-Containing Sheet Flooring Adhered to Concrete Floor System by Asbestos-Containing Adhesive: See Sheet 64
- j. Miscellaneous Asbestos-Containing Materials: See Sheet 45
- k. Built-Up Roofing and Flashing: See Sheet 74
- l. Roof, Shingles and Underlayment: See Sheet 75
- m. Asbestos Cement Siding: See Sheet 81
- n. Asbestos Cement Roofing: See Sheet 82
- o. Electrical Wiring and Fixtures: See Sheet 95
- p. Asbestos Insulated Electrical Fixture: See Sheet 96

3.6.11 Sealing Contaminated Items Designated for Disposal

Contaminated items designated for removal shall be coated with an asbestos lockdown encapsulant before being removed from the asbestos control area. The asbestos lockdown encapsulant shall be tinted a contrasting color and shall be spray applied by airless method. Thoroughness of sealing operation shall be visually gauged by the extent of colored coating on exposed surfaces.

3.7 FINAL CLEANING AND VISUAL INSPECTION

After completion of all asbestos removal work and the gross amounts of asbestos have been removed from every surface, any remaining visible accumulations of asbestos shall be collected. For all classes of indoor asbestos abatement projects a final cleaning shall be performed using HEPA vacuum and wet cleaning of all exposed surfaces and objects in the regulated area. Upon completion of the cleaning, the Contractor shall conduct a visual pre-inspection of the cleaned area in preparation for a final inspection before final air clearance monitoring. The Contractor and the CO shall conduct a final visual inspection of the cleaned regulated area in accordance with ASTM E 1368 and document the results on the Final Cleaning and Visual Inspection as specified on the SET-UP DETAIL SHEET 19.

If the CO rejects the clean regulated area as not meeting final cleaning requirements, the Contractor shall reclean as necessary and have a follow-on inspection conducted with the CO. Recleaning and follow-up reinspection shall be at the Contractor's expense.

3.8 LOCKDOWN

Prior to removal of plastic barriers and after final visual inspection, a (lockdown) encapsulant shall be spray applied to ceiling, walls, floors, and other surfaces in the regulated area.

3.9 EXPOSURE ASSESSMENT AND AIR MONITORING

3.9.1 General Requirements

a. Exposure assessment, air monitoring and analysis of airborne concentration of asbestos fibers shall be performed in accordance with 29 CFR 1926.1101, and the Contractor's air monitoring plan. Results of breathing zone samples shall be posted at the job site and made available to the CO.

b. Worker Exposure.

(1) The Contractor's Designated IH shall collect samples representative of the exposure of each employee who is assigned to work within a regulated area. Breathing zone samples shall be taken for at least 25 percent of the workers in each shift, or a minimum of 2, whichever is greater. Air monitoring results at the 95 percent confidence level shall be calculated as shown in Table 2 at the end of this section.

(2) The Contractor shall utilize an independent testing laboratory with qualified analysts and appropriate equipment to conduct sample analyses of air samples using the methods prescribed in 29 CFR 1926.1101, to include NIOSH 94-113 Method 7400.

(3) The Contractor's workers shall not be exposed to an airborne fiber concentration in excess of 1.0 f/cc, as averaged over a sampling period of 30 minutes. Should a personal excursion concentration of 1.0 f/cc expressed as a 30-minute sample occur inside a regulated work area, the Contractor shall stop work immediately, notify the Contracting Officer, and implement additional engineering controls and work practice controls to reduce airborne fiber levels below prescribed limits in the work area. Work shall not restart until authorized by the CO.

c. Environmental Exposure

(1) All environmental air monitoring shall be performed by the Contractor's Designated CIH. The Government may elect to do additional air monitoring.

(2) Environmental and final clearance air monitoring shall be performed using NIOSH 94-113 Method 7400 (PCM) with optional confirmation of results by NIOSH 94-113 Method 7402 (TEM).

(3) For environmental and final clearance, air monitoring shall be conducted at a sufficient velocity and duration to establish the limit of detection of the method used at 0.005 f/cc.

(4) When confirming asbestos fiber concentrations (asbestos f/cc) from environmental and final clearance samples, use TEM in accordance with NIOSH 94-113 Method 7402. When such confirmation is conducted, it shall be from the same sample filter used for the NIOSH 94-113 Method 7400 PCM analysis. All confirmation of asbestos fiber concentrations, using NIOSH 94-113 Method 7402, shall be at the Contractor's expense.

(5) Monitoring may be duplicated by the Government at the discretion of the CO and at the Government's expense.

(6) The Contractor shall maintain a fiber concentration inside a regulated area less than or equal to 0.1 f/cc expressed as an 8 hour, time-weighted average (TWA) during the conduct of the asbestos abatement.

(7) At the discretion of the Contracting Officer, the fiber concentration may exceed 0.1 f/cc but shall not exceed 1.0 f/cc expressed as an 8-hour TWA. Should an environmental concentration of 1.0 f/cc expressed as an 8-hour TWA occur inside a regulated work area, the Contractor shall stop work immediately, notify the Contracting Officer, and implement additional engineering controls and work practice controls to reduce airborne fiber levels below prescribed limits in the work area. Work shall not restart until authorized by the CO.

3.9.2 Initial Exposure Assessment

The Contractor's Designated IH shall conduct an exposure assessment immediately before or at the initiation of an asbestos abatement operation to ascertain expected exposures during that operation. The assessment shall be completed in time to comply with the requirements, which are triggered by exposure data or the lack of a negative exposure assessment, and to provide information necessary to assure that all control systems planned are appropriate for that operation. The assessment shall take into consideration both the monitoring results and all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the Contractor which indicate the levels of airborne asbestos likely to be encountered on the job. For Class I asbestos work, until the employer conducts exposure monitoring and documents that employees on that job will not be exposed in excess of PELs, or otherwise makes a negative exposure assessment, the Contractor shall presume that employees are exposed in excess of the PEL-TWA and PEL-Excursion Limit.

3.9.3 Negative Exposure Assessment

The Contractor shall provide a negative exposure assessment for the specific asbestos job which will be performed. The negative exposure assessment shall be provided within 10 days of the initiation of the project and conform to the following criteria:

- a. Objective Data: Objective data demonstrating that the product or material containing asbestos minerals or the activity involving such product or material cannot release airborne fibers in concentrations exceeding the PEL-TWA and PEL-Excursion Limit under those work conditions having the greatest potential for releasing asbestos.

- b. Prior Asbestos Jobs: Where the Contractor has monitored prior asbestos jobs for the PEL and the PEL-Excursion Limit within 12 months of the current job, the monitoring and analysis were performed in compliance with asbestos standard in effect; the data were obtained during work operations conducted under workplace conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the Contractor's current operations; the operations were conducted by employees whose training and experience are no more extensive than that of employees performing the current job; and these data show that under the conditions prevailing and which will prevail in the current workplace, there is a high degree of certainty that the monitoring covered exposure from employee exposures will not exceed the PEL-TWA and PEL-Excursion Limit.
- c. Initial Exposure Monitoring: The results of initial exposure monitoring of the current job, made from breathing zone air samples that are representative of the 8-hour PEL-TWA and 30-minute short-term exposures of each employee. The monitoring covered exposure from operations which are most likely during the performance of the entire asbestos job to result in exposures over the PELs.

3.9.4 Independent Environmental Monitoring

The air monitoring Contractor has been provided a copy of the contract that includes this abatement work. The abatement Contractor will provide the air monitoring Contractor with an up-to-date copy of the accepted AHAP, APP and pertinent detailed drawings. The air monitoring Contractor is required to comply with the abatement Contractor's safety and health requirements. The abatement Contractor will coordinate all onsite activities with the air monitoring Contractor, the COR, and other affected parties as directed by the COR. The abatement Contractor will provide the air monitoring Contractor with an up-to-date schedule of abatement Contractor work activities. The air monitoring Contractor will coordinate with the abatement Contractor and the COR during the performance Government required air monitoring. The abatement Contractor is responsible for performing exposure assessment and personal air monitoring of abatement Contractor's work. The air monitoring Contractor is responsible for performing these tasks for its employee.

3.9.5 Preabatement Environmental Air Monitoring

Preabatement environmental air monitoring shall be established 1 day prior to the masking and sealing operations for each regulated area to determine background concentrations before abatement work begins. As a minimum, preabatement air samples shall be collected using NIOSH 94-113 Method 7400, PCM at these locations: outside the building; inside the building, but outside the regulated area perimeter; and inside each regulated work area. One sample shall be collected for every 2000 square feet of floor space. At least 2 samples shall be collected outside the building: at the exhaust of the HEPA unit; and downwind from the abatement site. The PCM samples shall be analyzed within 24 hours; and if any result in fiber concentration greater than 0.01 f/cc, asbestos fiber concentration shall be confirmed using NIOSH 94-113 Method 7402 (TEM).

3.9.6 Environmental Air Monitoring During Abatement

Until an exposure assessment is provided to the CO, environmental air monitoring shall be conducted at locations and frequencies that will accurately characterize any evolving airborne asbestos fiber concentrations. The assessment shall demonstrate that the product or material containing asbestos minerals, or the abatement involving such product or material, cannot release airborne asbestos fibers in concentrations exceeding 0.01 f/cc as a TWA under those work conditions having the greatest potential for releasing asbestos. The monitoring shall be at least once per shift at locations including, but not limited to, close to the work inside a regulated area; preabatement sampling locations; outside entrances to a regulated area; close to glovebag operations; representative locations outside of the perimeter of a regulated area; inside clean room; and at the exhaust discharge point of local exhaust system ducted to the outside of a containment (if used). If the sampling outside regulated area shows airborne fiber levels have exceeded background or 0.01 f/cc, whichever is greater, work shall be stopped immediately, and the Contracting Officer notified. The condition causing the increase shall be corrected. Work shall not restart until authorized by the CO.

3.9.7 Final Clearance Air Monitoring

The Contractor's Designated IH shall conduct final clearance air monitoring using aggressive air sampling techniques as defined in 40 CFR 763, Subpart E, Appendix A, Unit III, TEM Method B.7(d-f) and Table 4 of this section for all indoor asbestos abatement projects. Clearance air monitoring is not required for outside work.

3.9.7.1 Final Clearance Requirements, NIOSH PCM Method

For PCM sampling and analysis using NIOSH 94-113 Method 7400, the fiber concentration inside the abated regulated area, for each airborne sample, shall be less than 0.01 f/cc. The abatement inside the regulated area is considered complete when every PCM final clearance sample is below the clearance limit. If any sample result is greater than 0.01 total f/cc, the asbestos fiber concentration (asbestos f/cc) shall be confirmed from that same filter using NIOSH 94-113 Method 7402 (TEM) at Contractor's expense. If any confirmation sample result is greater than 0.01 asbestos f/cc, abatement is incomplete and cleaning shall be repeated. Upon completion of any required recleaning, resampling with results to meet the above clearance criteria shall be done.

3.9.7.2 Final Clearance Requirements, EPA TEM Method

For EPA TEM sampling and analysis, using the EPA Method specified in 40 CFR 763, abatement inside the regulated area is considered complete when the arithmetic mean asbestos concentration of the 5 inside samples is less than or equal to 70 structures per square millimeter (70 S/mm). When the arithmetic mean is greater than 70 S/mm, the 3 blank samples shall be analyzed. If the 3 blank samples are greater than 70 S/mm, resampling shall be done. If less than 70 S/mm, the 5 outside samples shall be analyzed and a Z-test analysis performed. When the Z-test results are less than 1.65, the decontamination shall be considered complete. If the Z-test results are more than 1.65, the abatement is incomplete and cleaning shall be repeated. Upon completion of any required recleaning, resampling with results to meet the above clearance criteria shall be done.

3.9.7.3 Air Clearance Failure

If clearance sampling results fail to meet the final clearance requirements, the Contractor shall pay all costs associated with the required recleaning, resampling, and analysis, until final clearance requirements are met.

3.9.8 Air-Monitoring Results and Documentation

Air sample fiber counting shall be completed and results provided within 24 hours (breathing zone samples), and 24 hours (environmental/clearance monitoring) after completion of a sampling period. The CO shall be notified immediately of any airborne levels of asbestos fibers in excess of established requirements. Written sampling results shall be provided within 5 working days of the date of collection. The written results shall be signed by testing laboratory analyst, testing laboratory principal and the Contractor's Designated IH. The air sampling results shall be documented on a Contractor's daily air monitoring log. The daily air monitoring log shall contain the following information for each sample:

- a. Sampling and analytical method used;
- b. Date sample collected;
- c. Sample number;
- d. Sample type: BZ = Breathing Zone (Personal), P = Preabatement, E = Environmental, C = Abatement Clearance;
- e. Location/activity/name where sample collected;
- f. Sampling pump manufacturer, model and serial number, beginning flow rate, end flow rate, average flow rate (L/min);
- g. Calibration date, time, method, location, name of calibrator, signature;
- h. Sample period (start time, stop time, elapsed time (minutes));
- i. Total air volume sampled (liters);
- j. Sample results (f/cc and S/mm square) if EPA methods are required for final clearance;
- k. Laboratory name, location, analytical method, analyst, confidence level. In addition, the printed name and a signature and date block for the Industrial Hygienist who conducted the sampling and for the Industrial Hygienist who reviewed the daily air monitoring log verifying the accuracy of the information.

3.10 CLEARANCE CERTIFICATION

When asbestos abatement is complete, ACM waste is removed from the regulated areas, and final clean-up is completed, the CO will allow the warning signs and boundary warning tape to be removed. After final clean-up and acceptable airborne concentrations are attained, but before the HEPA unit is turned off and the containment removed, the Government will remove all pre-filters on the building HVAC system and provide new pre-filters. The Contractor shall dispose of such filters as asbestos

contaminated materials. HVAC, mechanical, and electrical systems shall be re-established in proper working order. The Contractor and the CO shall visually inspect all surfaces within the containment for residual material or accumulated debris. The Contractor shall reclean all areas showing dust or residual materials. The CO will certify in writing that the area is safe before unrestricted entry is permitted. The Government will have the option to perform monitoring to certify the areas are safe before entry is permitted.

3.11 CLEANUP AND DISPOSAL

3.11.1 Title to ACM Materials

ACM material resulting from abatement work, except as specified otherwise, shall become the property of the Contractor and shall be disposed of as specified and in accordance with applicable federal, state and local regulations.

3.11.2 Collection and Disposal of Asbestos

All ACM waste shall be collected including contaminated wastewater filters, scrap, debris, bags, containers, equipment, and asbestos contaminated clothing and placed in leak-tight containers. Waste within the containers shall be wetted in case the container is breached. Asbestos-containing waste shall be disposed of at an EPA, state and local approved asbestos landfill. For temporary storage, sealed impermeable containers shall be stored in an asbestos waste load-out unit or in a storage/transportation conveyance (i.e., dumpster, roll-off waste boxes, etc.) in a manner acceptable to and in an area assigned by the CO. Procedure for hauling and disposal shall comply with 40 CFR 61, Subpart M, state, regional, and local standards.

3.11.3 Scale Weight Measurement

Scales used for measurement shall be public scales. Weighing shall be at a point nearest the work at which a public scale is available. Scales shall be standard truck scales of the beam type; scales shall be equipped with the type registering beam and an "over and under" indicator; and shall be capable of accommodating the entire vehicle. Scales shall be tested, approved and sealed by an inspector of the State of NJ. Scales shall be calibrated and resealed as often as necessary and at least once every three months to ensure continuous accuracy. Vehicles used for hauling ACM shall be weighed empty daily at such time as directed and each vehicle shall bear a plainly legible identification mark.

3.11.4 Weight Bills and Delivery Tickets

Copies of weight bills and delivery tickets shall be submitted to the CO during the progress of the work. The Contractor shall furnish the CO scale tickets for each load of ACM weighed and certified. These tickets shall include tare weight; identification mark for each vehicle weighed; and date, time and location of loading and unloading. Tickets shall be furnished at the point and time individual trucks arrive at the worksite. A master log of all vehicle loading shall be furnished for each day of loading operations. Before the final statement is allowed, the Contractor shall file with the Contracting Officer certified weigh bills and/or certified tickets and manifests of all ACM actually disposed by the Contractor for this contract.

3.11.5 Records and Management Plan

3.11.5.1 Asbestos Waste Shipment Records

The Contractor shall complete and provide the CO final completed copies of the Waste Shipment Record for all shipments of waste material as specified in 40 CFR 61, Subpart M and other required state waste manifest shipment records, within 3 days of delivery to the landfill. Each Waste Shipment Record shall be signed and dated by the CO, the waste transporter and disposal facility operator.

TABLE 1

INDIVIDUAL WORK TASK DATA ELEMENTS

Sheet _____ of _____

There is a separate data sheet for each individual work task.

1. WORK TASK DESIGNATION NUMBER _____
2. LOCATION OF WORK TASK _____
3. BRIEF DESCRIPTION OF MATERIAL TO BE ABATED: _____

 a. Type of Asbestos _____
 b. Percent asbestos content _____ %
4. ABATEMENT TECHNIQUE TO BE USED _____
5. OSHA ASBESTOS CLASS DESIGNATION FOR WORK TASK _____
6. EPA NESHAP FRIABILITY DESIGNATION FOR WORK TASK
 Friable _____ Non-friable Category I _____
 Non-friable Category II _____
7. FORM _____ and CONDITION OF ACM: GOOD _____ FAIR _____ POOR _____
8. QUANTITY: METERS _____, SQUARE METERS _____
- 8a. QUANTITY: LINEAR FT. _____, SQUARE FT. _____
9. RESPONSE ACTION DETAIL SHEET NUMBER FOR WORK TASK _____
10. SET-UP DETAIL SHEET NUMBERS
 FOR WORK TASK _____, _____, _____, _____,
 _____, _____, _____, _____.

NOTES:

- (1) Numeric sequence of individual work tasks (1,2,3,4, etc.) for each regulated area. Each category of EPA friability/OSHA class has a separate task.
- (2) Specific location of work (building, floor, area, e.g., Building 1421, 2nd Floor, Rm 201)
- (3) A description of material to be abated (example: horizontal pipe, cement wall panels, tile, stucco, etc.) type of asbestos (chrysotile, amosite, crocidolite, etc.); and % asbestos content.
- (4) Technique to be used: Removal = REM; Encapsulation = ENCAP; Encasement = ENCAS; Enclosure = ENCL; Repair = REP.
- (5) Class designation: Class I, II, III, or IV (OSHA designation).
- (6) Friability of materials: Check the applicable EPA NESHAP friability designation.
- (7) Form: Interior or Exterior Architectural = IA or EA; Mechanical/Electrical = ME.
 Condition: Good = G; Fair = F; Poor = P.
- (8) Quantity of ACM for each work task in meters or square meters.
- (8a) Quantity of ACM for each work task in linear feet or square feet.
- (9) Response Action Detail Sheet specifies the material to be abated and the methods to be used. There is only one Response Action Detail Sheet for each abatement task.
- (10) Set-up Detail Sheets indicate containment and control methods used in support of the response action (referenced in the selected Response Action Detail Sheet).

TABLE 2

FORMULA FOR CALCULATION OF THE 95 PERCENT CONFIDENCE LEVEL
(Reference: NIOSH 7400)

$$\text{Fibers/cc (01.95 percent CL)} = X + [(X) * (1.645) * (CV)]$$

Where: $X = ((E)(AC)) / ((V)(1000))$

$$E = ((F/Nf) - (B/Nb)) / Af$$

CV = The precision value; 0.45 shall be used unless the analytical laboratory provides the Contracting Officer with documentation (Round Robin Program participation and results) that the laboratory's precision is better.

AC = Effective collection area of the filter in square millimeters

V = Air volume sampled in liters

E = Fiber density on the filter in fibers per square millimeter

F/Nf = Total fiber count per graticule field

B/Nb = Mean field blank count per graticule field

Af = Graticule field area in square millimeters

$$TWA = C1/T1 + C2/T2 = Cn/Tn$$

Where: C = Concentration of contaminant

T = Time sampled.

TABLE 3

NIOSH METHOD 7400

PCM ENVIRONMENTAL AIR SAMPLING PROTOCOL (NON-PERSONAL)

Sample Location	Minimum No. of Samples	Filter Pore Size (Note 1)	Min. Vol. (Note 2) (Liters)	Sampling Rate (liters/min.)
Inside Abatement Area	0.5/140 Square Meters (Notes 3 & 4)	0.45 microns	3850	2-16
Each Room in 1 Abatement Area Less than 140 Square meters		0.45 microns	3850	2-16
Field Blank	2	0.45 microns	0	0
Laboratory Blank	1	0.45 microns	0	0

Notes:

1. Type of filter is Mixed Cellulose Ester.
2. Ensure detection limit for PCM analysis is established at 0.005 fibers/cc.
3. One sample shall be added for each additional 140 square meters. (The corresponding I-P units are 5/1500 square feet).
4. A minimum of 5 samples are to be taken per abatement area, plus 2 field blanks.

TABLE 4

EPA AHERA METHOD: TEM AIR SAMPLING PROTOCOL

Location Sampled	Minimum No. of Samples	Filter Pore Size	Min. Vol. (Liters)	Sampling Rate (liters/min.)
Inside Abatement Area	5	0.45 microns	1500	2-16
Outside Abatement Area	5	0.45 microns	1500	2-16
Field Blank	2	0.45 microns	0	0
Laboratory Blank	1	0.45 microns	0	0

Notes:

1. Type of filter is Mixed Cellulose Ester.
2. The detection limit for TEM analysis is 70 structures/square mm.

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

PROJECT NAME _____ CONTRACT NO. _____
PROJECT ADDRESS _____
CONTRACTOR FIRM NAME _____
EMPLOYEE'S NAME _____
(Print) _____ (Last) _____ (First) _____ (MI) _____

Social Security Number: _____ - _____ - _____, _____ (Optional)

WORKING WITH ASBESTOS CAN BE DANGEROUS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH TYPES OF LUNG DISEASE AND CANCER. IF YOU SMOKE AND INHALE ASBESTOS FIBERS, THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF THE NONSMOKING PUBLIC.

Your employer's contract for the above project requires that you be provided and you complete formal asbestos training specific to the type of work you will perform and project specific training; that you be supplied with proper personal protective equipment including a respirator, that you be trained in its use; and that you receive a medical examination to evaluate your physical capacity to perform your assigned work tasks, under the environmental conditions expected, while wearing the required personal protective equipment. These things are to be done at no cost to you. By signing this certification, you are acknowledging that your employer has met these obligations to you. The Contractor's Designated Industrial Hygienist will check the block(s) for the type of formal training you have completed. Review the checked blocks prior to signing this certification.

FORMAL TRAINING:

_____ a. For Competent Persons and Supervisors: I have completed EPA's Model Accreditation Program (MAP) training course, "Contractor/Supervisor", that meets this State's requirements.

_____ b. For Workers:

- _____ (1) For OSHA Class I work: I have completed EPA's MAP training course, "Worker", that meets this State's requirements.
- _____ (2) For OSHA Class II work (where there will be abatement of more than one type of Class II materials, i.e., roofing, siding, floor tile, etc.): I have completed EPA's MAP training course, "Worker", that meets this State's requirements.
- _____ (3) For OSHA Class II work (there will only be abatement of one type of Class II material):
- _____ (a) I have completed an 8-hour training class on the elements of 29 CFR 1926.1101(k) (9) (viii), in addition to the specific work practices and engineering controls of 29 CFR 1926.1101(g) and hands-on training.
- _____ (b) I have completed EPA's MAP training course, "Worker", that meets this State's requirements.
- _____ (4) For OSHA Class III work: I have completed at least a 16-hour course consistent with EPA requirements for training of local education agency maintenance and custodial staff at 40 CFR 763, Section .92(a) (2) and the elements of 29 CFR 1926.1101(k) (9) (viii), in addition to the specific work practices and engineering controls at 29 CFR 1926.1101, and hands-on training.

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

_____ (5) For OSHA Class IV work: I have completed at least a 2-hr course consistent with EPA requirements for training of local education agency maintenance and custodial staff at 40 CFR 763, (a)(1), and the elements of 29 CFR 1926.1101(k)(9)(viii), in addition to the specific work practices and engineering controls at 29 CFR 1926.1101(g) and hands-on training.

_____ c. Workers, Supervisors and the Designated Competent Person: I have completed annual refresher training as required by EPA's MAP that meets this State's requirements.

PROJECT SPECIFIC TRAINING:

_____ I have been provided and have completed the project specific training required by this Contract. My employer's Designated Industrial Hygienist and Designated Competent Person conducted the training.

RESPIRATORY PROTECTION:

_____ I have been trained in accordance with the criteria in the Contractor's Respiratory Protection program. I have been trained in the dangers of handling and breathing asbestos dust and in the proper work procedures and use and limitations of the respirator(s) I will wear. I have been trained in and will abide by the facial hair and contact lens use policy of my employer.

RESPIRATOR FIT-TEST TRAINING:

_____ I have been trained in the proper selection, fit, use, care, cleaning, maintenance, and storage of the respirator(s) that I will wear. I have been fit-tested in accordance with the criteria in the Contractor's Respiratory Program and have received a satisfactory fit. I have been assigned my individual respirator. I have been taught how to properly perform positive and negative pressure fit-check upon donning negative pressure respirators each time.

EPA/NJ CERTIFICATION/LICENSE

I have an EPA/NJ certification/license as:
Building Inspector/Management Planner; Certification # _____
Contractor/Supervisor, Certification # _____
Project Designer, Certification # _____
Worker, Certification # _____

MEDICAL EXAMINATION:

_____ I have had a medical examination within the last twelve months which was paid for by my employer. The examination included: health history, pulmonary function tests, and may have included an evaluation of a chest x-ray. A physician made a determination regarding my physical capacity to perform work tasks on the project while wearing personal protective equipment including a respirator. I was personally provided a copy and informed of the results of that examination. My employer's Industrial Hygienist evaluated the medical certification provided by the physician and checked the appropriate blank below. The physician determined that there:

_____ were no limitations to performing the required work tasks.
_____ were identified physical limitations to performing the required work tasks.

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

Date of the medical examination _____

Employee Signature _____ date _____

Contractor's Industrial

Hygienist Signature _____ date _____

-- End of Section --

SECTION 13281A

LEAD BASED PAINT AWARENESS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1926	Safety and Health Regulations for Construction

1.2 DESCRIPTION

There is no specific task for lead based paint abatement, however it should be assumed that all painted materials are lead based, and Contractors should make employees aware of the potential worker exposure issues during demolition procedures.

1.3 SUMMARY OF WORK

1.3.1 Potential Lead Hazard

The disturbance or dislocation of lead-containing materials may cause lead dust to be released into the building's atmosphere, thereby creating a potential health hazard to workmen and others who may be on-site. Contractor shall apprise all workers, supervisory personnel, Subcontractor's and consultants who will be at the job site of the seriousness of the hazard and of proper Work procedures which must be followed. Take appropriate measures as necessary to protect all building occupants from the potential hazard to airborne lead dust. Such measures shall include the procedures and methods described herein, regulations of the Occupational Safety and Health Administration (OSHA), such as 29 CFR 1910.1025, and the U.S. Environmental Protection Agency (EPA).

1.3.2 Lead Compliance Plan

The Contractor is required to submit a Lead Compliance Plan in accordance with 29 CFR 1910 and 29 CFR 1926.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 13284

REMOVAL AND DISPOSAL OF POLYCHLORINATED BIPHENYLS (PCBs)

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.1000	Air Contaminants
29 CFR 1910.145	Accident Prevention Signs and Tags
40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
49 CFR 171	General Information, Regulations, and Definitions
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
49 CFR 174	Carriage by Rail
49 CFR 175	Carriage by Aircraft
49 CFR 176	Carriage by Vessel
49 CFR 177	Carriage by Public Highway
49 CFR 178	Specifications for Packagings
49 CFR 179	Specifications for Tank Cars

1.2 REQUIREMENTS

The work includes the removal and disposal of PCBs, located within miscellaneous containers or transformers if encountered during demolition operations. Perform work in accordance with 40 CFR 761 and the requirements specified herein.

1.3 DEFINITIONS

1.3.1 Leak

Leak or leaking means any instance in which a PCB Article, PCB Container,

or PCB Equipment has any PCBs on any portion of its external surface.

1.3.2 PCBs

PCBs as used in this specification shall mean the same as PCBs, PCB Article, PCB Article Container, PCB Container, PCB Equipment, PCB Item, PCB Transformer, PCB-Contaminated Electrical Equipment, as defined in 40 CFR 761, Section 3, Definitions.

1.3.3 Spill

Spill means both intentional and unintentional spills, leaks, and other uncontrolled discharges when the release results in any quantity of PCBs running off or about to run off the external surface of the equipment or other PCB source, as well as the contamination resulting from those releases.

1.4 QUALITY ASSURANCE

1.4.1 Training

Instruct employees on the dangers of PCB exposure, on respirator use, decontamination, and applicable OSHA and EPA regulations.

1.4.2 Certified Industrial Hygienist (CIH)

Obtain the services of an industrial hygienist certified by the American Board of Industrial Hygiene to certify training, review and approve the PCB removal plan, including determination of the need for personnel protective equipment (PPE) in performing PCB removal work.

1.4.3 Regulation Documents

Maintain at all times one copy each at the office and one copy each in view at the job site 29 CFR 1910.1000, 40 CFR 761, and Contractor work practices for removal, storage and disposal of PCBs.

1.4.4 Surveillance Personnel

Surveillance personnel may enter PCB control areas for brief periods of time provided they wear disposable polyethylene gloves and disposal polyethylene foot covers, as a minimum. Additional protective equipment may be required if respiratory hazard is involved or if skin contact with PCB is involved.

1.5 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-07 Certificates

Training certification;

Qualifications of CIH;

PCB Removal Work Plan;

PCB Disposal Plan;

Notification

Transporter certification of notification to EPA of their PCB waste activities and EPA ID numbers

Certification of Decontamination for PCB Spill

Post cleanup sampling data

Certificate of disposal

1.6 EQUIPMENT

1.6.1 Special Clothing

Work clothes shall consist of PPE as required by OSHA regulations, including, but not limited to the following:

- a. Disposable coveralls
- b. Gloves (Disposable rubber gloves may be worn under these)
- c. Disposable foot covers (polyethylene)
- d. Chemical safety goggles
- e. Half mask cartridge respirator.

1.6.2 Special Clothing for Government Personnel

Provide PPE specified in paragraph entitled "Special Clothing" to the Contracting Officer as required for inspection of the work.

1.6.3 PCB Spill Kit

Assemble a spill kit to include the following items:

<u>ITEM</u>	<u>MINIMUM QUANTITY</u>
1. Disposable gloves (polyethylene)	6 prs
2. Gloves with a high degree of impermeability to PCB	6 prs
3. Disposable coveralls with permeation resistance to PCB	4 ea
4. Chemical safety goggles	2 ea
5. Disposable foot covers (polyethylene)	6 prs
6. PCB Caution Sign: "PCB Spill--Authorized Personnel Only"	2 ea
7. Banner guard or equivalent banner material	100 feet
8. Absorbent material	
9. Blue polyethylene waste bags	5 bags
10. Cloth backed tape	5 ea
11. Area access logs, blank	1 roll
12. Brattice cloth, 6' x 6'	10 ea

<u>ITEM</u>	<u>MINIMUM QUANTITY</u>
13. Rags	1 piece
14. Ball point pens	20 ea
15. Herculite, 4' x 4' and 8' x 8'	2 ea 1 ea
16. Blank metal signs and grease pencils	?
17. Waste containers 55 gallon drum, may be used as container for kit)	2 ea 5 ea

1.7 QUALITY ASSURANCE

1.7.1 Training Certification

Submit certificates, prior to the start of work but after the main abatement submittals, signed and dated by the CIH and by each employee stating that the employee has received training. Certificates shall be organized by individual worker, not grouped by type of certificates.

1.7.2 Qualifications of CIH

Submit the name, address, and telephone number of the Industrial Hygienist selected to perform the duties in paragraph entitled "Certified Industrial Hygienist." Submit proper documentation that the Industrial Hygienist is certified, including certification number and date of certification/recertification.

1.7.3 PCB Removal Work Plan

Submit a detailed job-specific plan of the work procedures to be used in the removal of PCB-containing materials, not to be combined with other hazardous abatement plans, no later than 30 days after the Notice to Proceed. Provide a Table of Contents for each abatement submittal which shall follow the sequence of requirements in the contract. The plan shall include a sketch showing the location, size, and details of PCB control areas, location and details of decontamination rooms, change rooms, shower facilities, and mechanical ventilation system. Include in the plan, eating, drinking, smoking and restroom procedures, interface of trades, sequencing of PCB related work, PCB disposal plan, respirators, protective equipment, and a detailed description of the method of containment of the operation to ensure that PCB contamination is not spread or carried outside of the control area.

1.7.4 PCB Disposal Plan

Submit a PCB Disposal Plan within 45 calendar days after award of contract for Contracting Officer's approval. The PCB Disposal Plan shall comply with applicable requirements of Federal, State, and local PCB waste regulations and address:

- a. Identification of PCB wastes associated with the work.
- b. Estimated quantities of wastes to be generated and disposed of.
- c. Names and qualifications of each contractor that will be transporting, storing, treating, and disposing of the wastes. Include the facility location and a 24-hour point of contact. Furnish two copies of EPA, State and local PCB waste permits and

EPA Identification numbers.

- d. Names and qualifications (experience and training) of personnel who will be working on-site with PCB wastes.
- e. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.
- f. Spill prevention, containment, and cleanup contingency measures to be implemented.
- g. Work plan and schedule for PCB waste containment, removal and disposal. Wastes shall be cleaned up and containerized daily.

Title

1.7.5 Notification

Notify the Contracting Officer 20 days prior to the start of PCB removal work.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 PROTECTION

3.1.1 Decontamination Room, Clean Room and Shower Facilities

- a. Provide material and labor for construction of a decontamination room, a clean room, and shower facilities. Provide rooms with doors and attach to the exit ways of PCB work areas. Rooms shall be of sufficient size to accommodate the Contractor's operation within. Provide portable toilet and shower facilities. Locate shower facilities between the clean room and decontamination room. Provide separate clothing lockers or containers in each room to prevent contamination of street and work clothes.
- b. Remove PCB-contaminated PPE in the decontamination room. Workers shall then proceed to showers. Workers shall shower before lunch and at the end of each day's work. Hot water, towels, soap, and hygienic conditions are the responsibility of the Contractor.

3.1.2 PCB Control Area

Isolate PCB control area by physical boundaries to prevent unauthorized entry of personnel. Food, drink and smoking materials shall not be permitted in areas where PCBs are handled or PCB items are stored.

3.1.3 Personnel Protection

Workers shall wear and use PPE, as recommended by the Industrial Hygienist, upon entering a PCB control area. If PPE is not required per the CIH, specify in the PCB removal work plan.

3.1.4 Footwear

Work footwear shall remain inside work area until completion of the job.

3.1.5 Permissible Exposure Limits (PEL)

PEL for PCBs is 3.1 E-08 lb/cubic foot on an 8-hour time weighted average basis.

3.1.6 Special Hazards

- a. PCBs shall not be exposed to open flames or other high temperature sources since toxic decomposition by-products may be produced.
- b. PCBs shall not be heated to temperatures of 135 degrees F or higher without Contracting Officer's concurrence.

3.1.7 PCB Caution Label

40 CFR 761, Subpart C. Affix labels to PCB waste containers and other PCB-contaminated items. Provide label with sufficient print size to be clearly legible, with bold print on a contrasting background, displaying the following: CAUTION: Contains PCBs (Polychlorinated Biphenyls).

3.1.8 PCB Caution Sign

29 CFR 1910.145. Provide signs at approaches to PCB control areas. Locate signs at such a distance that personnel may read the sign and take the necessary precautions before entering the area.

3.2 WORK PROCEDURE

Furnish labor, materials, services, and equipment necessary for the complete removal of PCBs located at the site as indicated or specified in accordance with local, State, or Federal regulations. Package and mark PCB as required by EPA and DOT regulations and dispose of off-site in accordance with EPA, DOT, and local regulations at a permitted site.

3.2.1 No Smoking

Smoking is not permitted within 50 feet of the PCB control area. Provide "No Smoking" signs as directed by the Contracting Officer.

3.2.2 Work Operations

Ensure that work operations or processes involving PCB or PCB-contaminated materials are conducted in accordance with 40 CFR 761 and the applicable requirements of this section, including but not limited to:

- a. Obtaining advance approval of PCB storage sites.
- b. Notifying Contracting Officer prior to commencing the operation.
- c. Reporting leaks and spills to the Contracting Officer.
- d. Cleaning up spills.
- e. Maintaining an access log of employees working in a PCB control area and providing a copy to the Contracting Officer upon

completion of the operation.

- f. Inspecting PCB and PCB-contaminated items and waste containers for leaks and forwarding copies of inspection reports to the Contracting Officer.
- g. Maintaining a spill kit as specified in paragraph entitled "PCB Spill Kit."
- h. Maintaining inspection, inventory and spill records.

3.3 PCB TRANSFORMERS

3.3.1 Draining of Transformer Liquid

Perform work in accordance with 49 CFR 171, 49 CFR 172, 49 CFR 173, 49 CFR 174, 49 CFR 175, 49 CFR 176, 49 CFR 177, 49 CFR 178, and 49 CFR 179, Subchapter C and as specified herein. Drain the transformer, switches, and regulators of free flowing liquid prior to transportation. Place the drained liquids in DOT Spec 17E drums. The drums shall not contain more than 50 gallons of oil. If the equipment cannot be drained, then place it in DOT Spec 17C drums.

3.3.2 Markings

Provide drums and drained PCB-contaminated electrical equipment with caution label markings as specified in paragraph entitled "PCB Caution Label."

3.4 PCB REMOVAL

Select PCB removal procedure to minimize contamination of work areas with PCB or other PCB-contaminated debris/waste. Handle PCBs such that no skin contact occurs. PCB removal process should be described in the work plan.

3.4.1 Confined Spaces

As feasible, do not carry out PCB handling operations in confined spaces. A confined space shall mean a space having limited means of egress and inadequate cross ventilation.

3.4.2 Control Area

Establish a PCB control area around the PCB item as specified in paragraph entitled "PCB Control Area." Only personnel briefed on the elements in the paragraph entitled "Training" and on the handling precautions shall be allowed into the area.

3.4.3 Exhaust Ventilation

If used, exhaust ventilation for PCB operations shall discharge to the outside and away from personnel.

3.4.4 Temperatures

As feasible, handle PCBs at ambient temperatures and not at elevated temperatures.

3.4.5 Solvent Cleaning

Clean contaminated tools, containers, etc., after use by rinsing three times with an appropriate solvent or by wiping down three times with a solvent wetted rag. Suggested solvents are stoddard solvent or hexane.

3.4.6 Drip Pans

Drip pans are required under portable PCB transformers and rectifiers in use or stored for use. The pans shall have a containment volume of at least one and one-half times the internal volume of PCBs in the item.

3.4.7 Evacuation Procedures

Procedures shall be written for evacuation of injured workers. Aid for a seriously injured worker shall not be delayed for reasons of decontamination.

3.5 PCB SPILL CLEANUP REQUIREMENTS

3.5.1 PCB Spills

Immediately report to the Contracting Officer any PCB spills on the ground or in the water, PCB spills in drip pans, or PCB leaks.

3.5.2 PCB Spill Control Area

Rope off an area around the edges of a PCB leak or spill and post a "PCB Spill Authorized Personnel Only" caution sign. Immediately transfer leaking items to a drip pan or other container.

3.5.3 PCB Spill Cleanup

40 CFR 761, Subpart G. Initiate cleanup of spills as soon as possible, but no later than 48 hours of its discovery. To clean up spills, personnel shall wear the PPE prescribed in paragraph entitled "Special Clothing" of this section. If misting, elevated temperatures or open flames are present, or if the spill is situated in a confined space, notify the Contracting Officer. Mop up the liquid with rags or other conventional absorbent. The spent absorbent shall be properly contained and disposed of as solid PCB waste.

3.5.4 Records and Certification

Document the cleanup with records of decontamination in accordance with 40 CFR 761, Section 125, Requirements for PCB Spill Cleanup. Provide certification of decontamination.

3.5.5 Sampling Requirements

Perform post cleanup sampling as required by 40 CFR 761, Section 130, Sampling Requirements. Do not remove boundaries of the PCB control area until site is determined satisfactorily clean by the Contracting Officer.

3.6 STORAGE FOR DISPOSAL

3.6.1 Storage Containers for PCBs

49 CFR 178. Store liquid PCBs in Department of Transportation (DOT)

Specification 17E containers. Store nonliquid PCB mixtures, articles, or equipment in DOT Specification 5, 5B, or 17C containers with removable heads.

3.6.2 Waste Containers

Label with the following:

- a. "Solid (or Liquid) Waste Polychlorinated Biphenyls"
- b. The PCB Caution Label, paragraph entitled "PCB Caution Label"
- c. The date the item was placed in storage and the name of the cognizant activity/building.

3.6.3 PCB Articles and PCB-Contaminated Items

Label with items b. through c. above.

3.6.4 Approval of Storage Site

Obtain in advance Contracting Officer approval using the following criteria without exception.

- a. Adequate roof and walls to prevent rainwater from reaching the stored PCBs.
- b. An adequate floor which has continuous curbing with a minimum 6 inch high curb. Such floor and curbing shall provide a containment volume equal to at least two times the internal volume of the largest PCB article or PCB container stored therein or 25 percent of the total internal volume of all PCB equipment or containers stored therein, whichever is greater.
- c. No drain valves, floor drains, expansion joints, sewer lines, or other openings that would permit liquids to flow from the curbed area.
- d. Floors and curbing constructed of continuous smooth and impervious materials such as portland cement, concrete or steel to prevent or minimize penetrations of PCBs.
- e. Not located at a site which is below the 100-year flood water elevation.
- f. Each storage site shall be posted with the PCB Caution Sign, paragraph entitled "PCB Caution Sign."

3.7 CLEANUP

Maintain surfaces of the PCB control area free of accumulations of PCBs. Restrict the spread of dust and debris; keep waste from being distributed over work area.

- a. Do not remove the PCB control area and warning signs prior to the Contracting Officer's approval. Reclean areas showing residual PCBs.

3.8 DISPOSAL

Comply with disposal requirements and procedures outlined in 40 CFR 761. Do not accept PCB waste unless it is accompanied by a manifest signed by the Government. Before transporting the PCB waste, sign and date the manifest acknowledging acceptance of the PCB waste from the Government. Return a signed copy to the Contracting Officer before leaving the job site. Ensure that the manifest accompanies the PCB waste at all times. Submit transporter certification of notification to EPA of their PCB waste activities.

3.8.1 Certificate of Disposal

40 CFR 761. Submit to the Contracting Officer within 30 days of the date that the disposal of the PCB waste identified on the manifest was completed. Certificate for the PCBs and PCB items disposed shall include:

- a. The identity of the disposal facility, by name, address, and EPA identification number.
- b. The identity of the PCB waste affected by the Certificate of Disposal including reference to the manifest number for the shipment.
- c. A statement certifying the fact of disposal of the identified PCB waste, including the date(s) of disposal, and identifying the disposal process used.
- d. A certification as defined in 40 CFR 761, Section 3.

3.8.1.1 Payment Upon Furnishing Certificate of Disposal of PCBs

Payment will not be made until the certificate of disposal has been furnished to the Contracting Officer.

SECTION 13285

REMOVAL AND DISPOSAL OF PCB CONTAMINATED SOILS AND CONCRETE

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D 4397 (2002) Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 530/F-93/004 (1993; Rev O; Updates I, II, IIA, IIB, and III) Test Methods for Evaluating Solid Waste (Vol IA, IB, IC, and II) (SW-846)

EPA 560/5-86-017 (1986) Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.1000 Air Contaminants

29 CFR 1910.120 Hazardous Waste Operations and Emergency Response

29 CFR 1910.145 Accident Prevention Signs and Tags

40 CFR 761 Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions

1.2 DEFINITIONS

1.2.1 PCB and PCBs (Polychlorinated Biphenyls)

40 CFR 761. PCB and PCBs means any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contain such substance.

1.2.2 PCB Contaminated Soil

Soils containing concentrations greater than 50 parts per million (ppm) PCBs when tested as specified herein, as defined in the USEPA's Record of Decision for the site.

1.2.3 PCB Contaminated Water

PCB contaminated water shall be as defined in the Contractor's approved

Soil Erosion and Sediment Control Plan in Section 01356A STORM WATER
POLLUTION PREVENTION MEASURES.

1.2.4 Permissible Exposure Limits (PEL)

PEL for PCBs is 0.5 mg per cubic meter on an 8-hour time weighted average basis.

1.3 DESCRIPTION OF WORK

Perform work in accordance with 40 CFR 761, 29 CFR 1910.120, and the requirements specified herein. The work includes removal and disposal of PCB-contaminated concrete associated with building demolition and ancillary PCB-contaminated site soils removed during the demolition process. Previous environmental sampling has shown the presence of PCB's in the concrete floor slabs and walls of certain structures (see Contract Drawings and Appendix A Data Summary Report). Demolish and dispose of the contaminated concrete to the horizontal and vertical limits identified contaminated concrete as indicated.

Subsurface concrete foundations and debris have not been sampled but shall be considered potentially impacted by PCBs and handled and sampled in accordance with paragraph EXCAVATION AND DEMOLITION PROCEDURES of this Section. All soil excavation adjacent to subsurface structures shall be limited to the greatest extent practicable, and shall also be considered potentially impacted by PCBs. All subsurface soils shall be sampled and characterized in accordance with the Contractor's Sampling and Testing plan specified in paragraph Sampling and Testing Plan of this Section and as approved by the Contracting Officer.

The Contractor shall be aware that a separate Government soil sampling and contamination delineation program has been planned for the site in late 2006. As additional data from that program becomes available, it will be made available to the Contractor for information purposes if appropriate.

1.3.1 Existing Conditions

PCB contaminant levels range from "not detected" to 130,000 ppm.

1.4 QUALITY ASSURANCE

1.4.1 Training

Instruct employees on the dangers of PCB exposure, on respirator use, decontamination, and applicable OSHA and EPA regulations.

1.4.2 Certified Industrial Hygienist (CIH)

Obtain the services of an industrial hygienist certified by the American Board of Industrial Hygiene to certify training, and review and approve the PCB removal plan, including determination of the need for personnel protective equipment (PPE) in performing PCB removal work.

1.4.3 Regulation Documents

Maintain at the job site one readily available copy each of 29 CFR 1910.1000, 40 CFR 761, and all contractor prepared plans required under "Submittals" paragraphs.

1.4.4 PCB Protection Plan

Prepare and submit a protection plan, prepared by the CIH, covering protection of workers and the environment from PCB hazards no later than 30 days after the Notice to Proceed. Specific protection requirements shall be determined by the CIH and, as a minimum, as specified herein.

1.4.5 PCB-Contaminated Soil and Concrete Removal Plan

Prepare and submit, 15 calendar days prior to initiating work and no later than 30 days after the Notice to Proceed, a plan describing methods, techniques, and phases of dealing with the PCB-contaminated concrete slabs and walls, and potentially contaminated subsurface soils and concrete, including: a schedule to be employed in the excavation and demolition, a sequence of operations, the method of excavation, hauling, and handling of the contaminated materials, and the proposed equipment. Define the Contractor's source for fill and method for importing the fill material.

1.4.6 PCB-Contaminated Water Handling Plan

Prepare and submit plan detailing methods and techniques for collection and treatment of PCB-contaminated water as required for decontamination and excavation dewatering operations in accordance with Section 02310 EXCAVATION. The plan shall be submitted no later than 30 days after the Notice to Proceed. For treatment system, include size and location of equipment, catalog data on all components of system, size and arrangement of filters, type and quantity of filtering material, and method of containment.

1.4.7 PCB Sampling and Testing Plan

Prepare and submit sampling and testing plan no later than 30 days after notice to proceed. Include the names of testing laboratories to be used to accomplish analysis of contaminated soil and water. Describe field and laboratory sampling procedures, testing methods, and quality control procedures. For sample reports, show sample identification for location, date, time, sample method, contamination level, name of individual sampler, identification of laboratory, and quality control procedures. Maximum turnaround time of 4 calendar days is required for laboratory sample analyses in accordance with the standard work week of the contract.

1.4.8 Training Certification

Submit certificates signed and dated by the CIH and by each employee stating that the employee has received training.

1.4.9 CIH Qualifications

Submit the name, address, and telephone number of the industrial hygienist selected to perform the duties in paragraph entitled "Certified Industrial Hygienist." Submit proper documentation that the industrial hygienist is certified, including certification number and date of certification and recertification.

1.4.10 PCB-Contaminated Soil and Concrete Disposal Plan

Submit a PCB-Contaminated Soil and Concrete Disposal Plan within 45 calendar days after award of contract for Contracting Officer's approval. Comply with applicable requirements of Federal, State, and local PCB waste

regulations and address:

- a. Identification of PCB wastes associated with the work.
- b. Estimated quantities of wastes to be generated and disposed of.
- c. Names and qualifications of each Contractor that will be transporting, storing, treating, and disposing of the wastes. Include the facility location and a 24-hour point of contact. Furnish two copies of EPA, State and local PCB waste permit applications, permits and EPA identification numbers.
- d. Names and qualifications (experience and training) of personnel who will be working on-site with PCB wastes.
- e. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.
- g. Location of state certified weigh station.
- h. Work plan and schedule for PCB waste containment, removal, and disposal. Clean up and containerize wastes daily.

1.4.11 Vehicle Decontamination Verification

Provide documentation verifying that vehicles and containers were decontaminated prior to leaving the disposal site, were properly operating, and were covered, within 24 hours after removal of waste from the site. Documentation shall consist of a sign-off sheet as approved by the Contracting Officer.

1.4.12 Closeout Report

Prepare closeout report containing following items: test results including readings and locations, a diagram of the limits of the excavated area with sample locations indicated (indicate reference benchmark used), chain of custody forms, certificates of disposal, truck manifests, and description of the work completed.

1.5 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Field Screening Test

SD-07 Certificates

PCB Protection Plan; G, A/E, DO

PCB-Contaminated Soil and Concrete Removal Plan; G, A/E, DO

PCB-Contaminated Water Handling Plan; G, A/E, DO

PCB Sampling and Testing Plan; G, A/E, DO

Training certification;

CIH qualifications; G, A/E, DO

PCB-Contaminated Soil and Concrete Disposal Plan; G, A/E, DO

Shipping documentation

Vehicle decontamination verification

Borrow site testing

Certificates of Disposal

SD-11 Closeout Submittals

Closeout Report; G, A/E, DO

PART 2 PRODUCTS

2.1 PLASTIC SHEETING

ASTM D 4397.

2.2 FIELD SCREENING TEST

Field test capable of detecting PCBs down to at least 1 ppm, with less than 5 percent false negatives, and providing on site results within 2 hours of taking sample.

PART 3 EXECUTION

3.1 PROTECTION OF WORKERS AND THE ENVIRONMENT

Protect workers and the environment from PCB hazards in accordance with the PCB protection plan and, as a minimum, as specified herein.

3.1.1 Worker Safety

Provide portable decontamination and shower rooms. Workers shall wear and use PPE, as recommended by the industrial hygienist, upon entering a PCB control area. If PPE is not required by the CIH, specify in the PCB removal work plan. Keep work footwear inside work area until completion of the job. Have available one set of PPE required for use by Contracting Officer for inspection of work. Do not carry out PCB handling operations in confined spaces. Do not delay aid to a seriously injured worker for reasons of decontamination.

3.1.2 PCB Control Area

Establish a PCB control area to prevent unauthorized entry of personnel. Rope off area and provide 29 CFR 1910.145 signs at approaches and around perimeter. Locate signs at such a distance that personnel may read the sign and take the necessary precautions before entering the area. Allow only personnel briefed on the elements and trained as specified herein into the area. Do not permit food, drink, or smoking materials in the control

area. Smoking is not permitted within 50 feet of the PCB control area. Provide "No Smoking" signs as directed by the Contracting Officer.

3.1.3 Air Quality

Include provisions to ensure that airborne PCB concentrations below the PEL of air defined herein are not exceeded outside of the PCB control area or by workers inside the PCB control area. Provide air monitoring, personnel monitoring, and sampling to ensure workers safety as determined by the CIH and as specified herein. As a minimum, sample the air daily at the following locations: at locations being disturbed, within the breathing zone of workers, and at the downwind border of the control area. Measure using instrument capable of detecting airborne PCBs at concentrations below OSHA PEL, or use a direct reading total particulate meter correlated to a worst case amount of PCBs attached to the particulate. When airborne concentrations exceed PEL at the breathing zone of workers, provide respirators and additional worker protection as dictated in the Site Health and Safety Plan. If airborne concentration exceeds PEL at boundary of control area, immediately stop work and notify the Contracting Officer.

3.1.4 Special Hazards

- a. Do not expose PCBs to open flames or other high temperature sources since toxic decomposition by-products may be produced.
- b. Do not heat PCBs to temperatures of 135 degrees F or higher without Contracting Officer's concurrence.

3.2 PCB SPILL PREVENTION

Use appropriate vehicles and operating practices to prevent spillage or leakage of contaminated materials from occurring during operations. Inspect vehicles leaving the contaminated soil removal site to ensure that no contaminated soil adheres to the wheels or undercarriage. Immediately report any spills to the Contracting Officer and provide cleanup in accordance with 40 CFR 761, Subpart G.

3.3 EXCAVATION AND DEMOLITION PROCEDURES

Notify the Contracting Officer at least 48 hours prior to the start of excavation and demolition of PCB-contaminated soils and/or concrete. Use methods and equipment that result in minimal disturbance to remaining material beyond the excavation limits. Remove and dispose of any material that becomes contaminated as a result of the Contractor's operation at no additional cost to the Government. Stage operations to minimize the time the contaminated material is exposed to the weather. Provide protection measures around the area of contaminated material to divert runoff of water from within the excavation boundaries.

3.3.1 Underground Utilities

Location of the existing utilities indicated is approximate and other underground utilities may be present. Scan the construction site with electromagnetic and sonic equipment and mark the surface of the ground where existing underground utilities are discovered. Physically verify the location and elevation of the existing utilities indicated prior to starting construction. If utilities other than those indicated are found, stop work and contact the Contracting Officer. Protect existing utilities from damage and intrusion of PCBs.

3.3.2 Dust Control

Maintain strict dust control at all times to prevent dust particles with PCB attached from becoming airborne. Sprinkle or treat the soil at the site and other areas disturbed by operations with dust suppressants or water.

3.3.3 Washdown of Solid Material

Remove asphalt pavement, concrete slabs, and structures encountered above or below the ground surface within the excavation limits. Brush to remove soil materials and clean to limit defined herein for PCB surface contaminated solids by double rinsing, and place in the adjacent rubble pile. Collect and dispose of washdown water as contaminated water. Sample each type of solid material using either wipe samples or destructive samples at locations as directed by the Contracting Officer. Analyze samples for PCBs in accordance with EPA 530/F-93/004, Method 8080. Collect and test field blanks and replicates in accordance with EPA protocol. Repeat cleaning process and testing until PCBs are below the limits specified herein.

3.3.3.1 Wipe Samples

40 CFR 761. A 10 cm by 10 cm template gauze pad or glass wool of known size which has been saturated in the laboratory with hexane and stored in sealed glass vials. Wipe immediately after exposing medium to air. Place sample in precleaned glass bottle, cap, label, and place in ice chest until analyzed.

3.3.3.2 Destructive Samples

EPA 560/5-86-017. Remove sufficient sample for analysis using chisel, hole saw, drills, etc. Take samples less than 3/8 inch deep and place in glass precleaned sample bottle, cap, label, and place in ice chest.

3.3.4 Field Screening

Collect soil samples along the bottom and along the sidewalls of the excavation, and test using field screening test.

3.3.5 Additional Excavations

No additional excavation shall be allowed unless explicitly requested by the Contracting Officer.

3.3.6 Stockpiled Material

Place PCB contaminated soil and concrete removed from the work area in a temporary containment area near the work area. Divert water from the containment area. Cover containment area with 30 mil polyethylene sheeting. Place materials on the impervious barrier and cover with 6 mil polyethylene sheeting. Provide straw bale berm around the outer limits of the containment area and cover with polyethylene sheets. Secure edges of sheets to keep the polyethylene sheeting in place. Cover contaminated material at all times when not being worked. Maintain sheeting and replace when worn or ripped. As an option, soil may be stockpiled in trucks suitable for carrying PCB contaminated materials as specified herein.

3.3.6.1 Composite Testing of Stockpiled Material

Take composite samples from stockpiled material prior to removing from site for the purposes of determining RCRA metal concentrations only. Disposal of PCB contaminated waste shall be based on in-situ concentrations. Frequency of stockpile composite samples shall be in accordance with disposal facility requirements. To develop a composite sample of the size necessary to run the required tests, take several samples from different areas along the surface and in the center of the stockpile. Combine these samples and thoroughly mix to develop the composite sample.

3.4 CONTAMINATED WATER

Collect washwater. Collect ground, surface, and rain water contaminated by operations including water collected in the open excavation pit or temporary containment. Soak up with absorbent material so that no free liquid is present. Containerize, sample, and analyze PCB absorbed material and dispose of as specified for contaminated soils.

3.5 COLLECTION, TREATMENT, AND DISCHARGE OF PCB-CONTAMINATED WATER

Furnish labor, materials, and equipment necessary for collecting, treating, and discharging of PCB-contaminated surface and subsurface water in excavations at the site. Conduct excavation and backfilling operations at the site in a manner that minimizes the amount of surface and subsurface water which may collect in the open excavation. Collect standing surface water in contact with PCB contaminated material.

3.5.1 Subsurface Drainage

Remove water by pumping or other methods to prevent softening of surfaces exposed by excavation. Provide water treatment necessary to treat water to levels specified herein. The Contractor shall have the option of either disposing to the local publicly owned treatment plant (POTW) or providing a mini-treatment system, subsequent to approval by the Contracting Officer. Operate dewatering system continuously until construction work below existing water levels is complete. After placement of initial backfill, water level may be allowed to rise, but never above one foot below the prevailing level of excavation or backfill. Submit performance records weekly. Measure and record performance of dewatering system at the same time each day by use of observation wells or piezometers installed in conjunction with the dewatering system.

3.5.2 Treatment System Requirements

The Contractor shall be responsible for all aspects of verifying design parameters designing, providing, installing, operating, maintaining, and removing collection, storage, and treatment facilities as required to discharge treated waters within the treatment limits required. The treatment system shall:

- a. Be capable of removing PCB contaminants to below the limit defined herein for contaminated water.
- b. Include effluent holding tanks designed to allow on-site testing of water quality prior to discharge.
- c. Include recycle capability for retreatment of effluent not meeting the discharge requirements of this specification, as determined by

on-site testing.

3.5.3 Treatment System Operations

Monitor, test, and adjust the treatment system in accordance with the work plan and Sampling and Analysis Plan, or as otherwise modified by special regulatory requirements. If there is a conflict between requirements, the more stringent requirement shall prevail. Test water in accordance with EPA Method 608.

3.5.4 Discharge of Treated Water and/or Offsite Disposal

Discharge for treated water or offsite disposal shall be in accordance with the Contractor's approved Soil Erosion and Sediment Control Plan.

3.5.5 Cleanup and Removal of Treatment System

Upon completion of work, close and remove from the site the surface water and groundwater treatment system. Restore the site to its original condition. Decontaminate equipment in accordance with the Contractor's Site Health and Safety Plan. Containerize, sample, test, and dispose of carbon, residues, cleaning aids, decontamination liquids, and waste as specified for the contaminated soils.

3.6 TRANSPORTATION AND DISPOSAL

Furnish labor, materials, and equipment necessary to store, transport, and dispose of PCB contaminated material in accordance with Section 02350 TRANSPORTATION AND DISPOSAL.

3.7 CLEANUP

Maintain surfaces of the PCB control area free of accumulations of PCBs. Restrict the spread of dust and debris; keep waste from being distributed over work area. Do not remove the PCB control area and warning signs prior to the Contracting Officer's approval. Reclean areas showing residual PCBs.

3.7.1 Solvent Cleaning

Clean contaminated tools, containers, etc., after use by rinsing three times with an appropriate solvent or by wiping down three times with a solvent wetted rag. Suggested solvents are stoddard solvent or hexane.

3.8 REPORTS

Prepare and submit a remediation closeout report at the completion of the work.

3.9 BACKFILLING, GRADING, TOPSOILING, AND SEEDING

Commence backfilling of the excavation within 10 calendar days after receiving confirmatory test results that indicate no further PCB contamination is present. Soils brought in from off site for use as backfill shall contain less than one part per million (ppm) PCBs. Provide borrow site testing for PCBs from composite sample of material from borrow site, with at least one test from each borrow site. Material shall not be brought on site until tests have been approved by the Contracting Officer. Provide backfill, compaction, grading, and seeding in accordance with Sections 02310 EXCAVATION and 02320 BACKFILL AND COMPACTION. Line the

excavation with two plastic sheets before backfilling.

-- End of Section --

SECTION 13286

HANDLING OF LIGHTING BALLASTS AND LAMPS CONTAINING PCBs AND MERCURY

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.1000	Air Contaminants
40 CFR 260	Hazardous Waste Management System: General
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 263	Standards Applicable to Transporters of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 268	Land Disposal Restrictions
40 CFR 270	EPA Administered Permit Programs: The Hazardous Waste Permit Program
40 CFR 273	Standards For Universal Waste Management
40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
49 CFR 178	Specifications for Packagings

1.2 REQUIREMENTS

Removal and disposal of PCB-containing lighting ballasts and associated mercury-containing lamps. Contractor may encounter leaking PCB ballasts.

1.3 DEFINITIONS

1.3.1 Certified Industrial Hygienist (CIH)

A industrial hygienist hired by the contractor shall be certified by the American Board of Industrial Hygiene.

1.3.2 Leak

Leak or leaking means any instance in which a PCB article, PCB container, or PCB equipment has any PCBs on any portion of its external surface.

1.3.3 Lamps

Lamp, also referred to as "universal waste lamp", is defined as the bulb or tube portion of an electric lighting device. A lamp is specifically designed to produce radiant energy, most often in the ultraviolet, visible, and infra-red regions of the electromagnetic spectrum. Examples of common universal waste electric lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps.

1.3.4 Polychlorinated Biphenyls (PCBs)

PCBs as used in this specification shall mean the same as PCBs, PCB containing lighting ballast, and PCB container, as defined in 40 CFR 761, Section 3, Definitions.

1.3.5 Spill

Spill means both intentional and unintentional spills, leaks, and other uncontrolled discharges when the release results in any quantity of PCBs running off or about to run off the external surface of the equipment or other PCB source, as well as the contamination resulting from those releases.

1.3.6 Universal Waste

Universal Waste means any of the following hazardous wastes that are managed under the universal waste requirements 40 CFR 273:

- (1) Batteries as described in Sec. 273.2 of this chapter;
- (2) Pesticides as described in Sec. 273.3 of this chapter;
- (3) Thermostats as described in Sec. 273.4 of this chapter; and
- (4) Lamps as described in Sec. 273.5 of this chapter.

1.4 QUALITY ASSURANCE

1.4.1 Regulatory Requirements

Perform PCB related work in accordance with 40 CFR 761. Perform mercury-containing lamps storage and transport in accordance with 40 CFR 261, 40 CFR 264, 40 CFR 265, and 40 CFR 273.

1.4.2 Training

Certified industrial hygienist (CIH) shall instruct and certify the training of all persons involved in the removal of PCB containing lighting ballasts and mercury-containing lamps. The instruction shall include: The dangers of PCB and mercury exposure, decontamination, safe work practices,

and applicable OSHA and EPA regulations. The CIH shall review and approve the PCB and Mercury-Containing Lamp Removal Work Plans.

1.4.3 Regulation Documents

Maintain at all times one copy each at the office and one copy each in view at the job site of 29 CFR 1910.1000, 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 265, 40 CFR 268, 40 CFR 270, 40 CFR 273 and of the Contractor removal work plan and disposal plan for PCB and for associated mercury-containing lamps.

1.5 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-07 Certificates

Qualifications of CIH; G, AE, DO

Training Certification; G, AE, DO

PCB and Lamp Removal Work Plan; G, AE, DO

PCB and Lamp Disposal Plan; G, AE, DO

SD-11 Closeout Submittals

Transporter certification of notification to EPA of their PCB waste activities and EPA ID numbers; G

Certification of Decontamination

Certificate of Disposal and/or recycling. Submit to the Government before application for payment within 30 days of the date that the disposal of the PCB and mercury-containing lamp waste identified on the manifest was completed.

1.6 ENVIRONMENTAL REQUIREMENTS

Use special clothing:

- a. Disposable gloves (polyethylene)
- b. Eye protection
- c. PPE as required by CIH

1.7 SCHEDULING

Notify the Contracting Officer 20 days prior to the start of PCB and mercury-containing lamp removal work.

1.8 QUALITY ASSURANCE

1.8.1 Qualifications of CIH

Submit the name, address, and telephone number of the Industrial Hygienist selected to perform the duties in paragraph entitled "Certified Industrial Hygienist." Submit training certification that the Industrial Hygienist is certified, including certification number and date of certification or re certification.

1.8.2 PCB and Lamp Removal Work Plan

Submit a job-specific plan within 20 calendar days after award of contract of the work procedures to be used in the removal, packaging, and storage of PCB-containing lighting ballasts and associated mercury-containing lamps. Include in the plan: Requirements for Personal Protective Equipment (PPE), spill cleanup procedures and equipment, eating, smoking and restroom procedures. The plan shall be approved and signed by the Certified Industrial Hygienist. Obtain approval of the plan by the Contracting Officer prior to the start of PCB and/or lamp removal work.

1.8.3 PCB and Lamp Disposal Plan

Submit a PCB and lamp Disposal Plan with 45 calendar days after award of contract. The PCB and Lamp Disposal Plan shall comply with applicable requirements of federal, state, and local PCB and Universal waste regulations and address:

- a. Estimated quantities of wastes to be generated, disposed of, and recycled.
- b. Names and qualifications of each Contractor that will be transporting, storing, treating, and disposing of the wastes. Include the facility location. Furnish two copies of EPA and state PCB and mercury-containing lamp waste permit applications and EPA identification numbers, as required.
- c. Names and qualifications (experience and training) of personnel who will be working on-site with PCB and mercury-containing lamp wastes.
- d. Spill prevention, containment, and cleanup contingency measures to be implemented.
- e. Work plan and schedule for PCB and mercury-containing lamp waste removal, containment, storage, transportation, disposal and or recycling. Wastes shall be cleaned up and containerize daily.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 WORK PROCEDURE

Furnish labor, materials, services, and equipment necessary for the removal of PCB containing lighting ballasts, associated mercury-containing fluorescent lamps, in accordance with local, state, or federal regulations.

Do not expose PCBs to open flames or other high temperature sources since toxic decomposition by-products may be produced. Do not break mercury containing fluorescent lamps or high intensity discharge lamps.

3.1.1 Work Operations

Ensure that work operations or processes involving PCB or PCB-contaminated materials are conducted in accordance with 40 CFR 761, 40 CFR 262 40 CFR 263, and the applicable requirements of this section, including but not limited to:

- a. Obtaining suitable PCB and mercury-containing lamp storage sites.
- b. Notifying Contracting Officer prior to commencing the operation.
- c. Reporting leaks and spills to the Contracting Officer.
- d. Cleaning up spills.
- e. Inspecting PCB and PCB-contaminated items and waste containers for leaks and forwarding copies of inspection reports to the Contracting Officer.
- f. Maintaining inspection, inventory and spill records.

3.2 PCB SPILL CLEANUP REQUIREMENTS

3.2.1 PCB Spills

Immediately report to the Contracting Officer any PCB spills.

3.2.2 PCB Spill Control Area

Rope off an area around the edges of a PCB leak or spill and post a "PCB Spill Authorized Personnel Only" caution sign. Immediately transfer leaking items to a drip pan or other container.

3.2.3 PCB Spill Cleanup

40 CFR 761, subpart G. Initiate cleanup of spills as soon as possible, but no later than 24 hours of its discovery. Mop up the liquid with rags or other conventional absorbent. The spent absorbent shall be properly contained and disposed of as solid PCB waste.

3.2.4 Records and Certification

Document the cleanup with records of decontamination in accordance with 40 CFR 761, Section 125, Requirements for PCB Spill Cleanup. Provide test results of cleanup and certification of decontamination.

3.3 REMOVAL

3.3.1 Ballasts

As ballast are removed from the lighting fixture, inspect label on ballast. Ballasts without a "No PCB" label shall be assumed to contain PCBs and containerized and disposed of as required under paragraphs STORAGE FOR DISPOSAL and DISPOSAL. If there are less than 1600 "No PCB" labeled lighting ballasts dispose of them as normal demolition debris.

3.3.2 Lighting Lamps

Remove lighting tubes/lamps from the lighting fixture and carefully place (unbroken) into appropriate containers (original transport boxes or equivalent). In the event of a lighting tube/lamp breaking, sweep and place waste in double plastic taped bags and dispose of as universal waste as specified herein.

3.4 STORAGE FOR DISPOSAL

3.4.1 Storage Containers for PCBs

49 CFR 178. Store PCB in containers approved by DOT for PCB.

3.4.2 Storage Containers for lamps

Store mercury containing lamps in appropriate DOT containers. The boxes shall be stored and labeled for transport in accordance with 40 CFR 273.

3.4.3 Labeling of Waste Containers

Label with the following:

- a. Date the item was placed in storage and the name of the cognizant activity/building.
- b. "Caution Contains PCB," conforming to 40 CFR 761, CFR Subpart C. Affix labels to PCB waste containers.
- c. Label mercury-containing lamp waste in accordance with 40 CFR 273. Affix labels to all lighting waste containers.

3.5 DISPOSAL

Dispose of off Government property in accordance with EPA, DOT, and local regulations at a permitted site.

3.5.1 Identification Number

Federal regulations 40 CFR 761, and 40 CFR 263 require that generators, transporters, commercial storers, and disposers of PCB waste possess U.S. EPA identification numbers. The contractor shall verify that the activity has a U.S. EPA generator identification number for use on the Uniform Hazardous Waste manifest. If not, the contractor shall advise the activity that it must file and obtain an I.D. number with EPA prior to commencement of removal work. For mercury containing lamp removal, Federal regulations 40 CFR 273 require that large quantity handlers of Universal waste (LQHUW) must provide notification of universal waste management to the appropriate EPA Region (or state director in authorized states), obtain an EPA identification number, and retain for three years records of off-site shipments of universal waste. The contractor shall verify that the activity has a U.S. EPA generator identification number for use on the Universal Waste manifest. If not, the contractor shall advise the activity that it must file and obtain an I.D. number with EPA prior to commencement of removal work.

3.5.2 Transporter Certification

Comply with disposal and transportation requirements outlined in 40 CFR 761 and 40 CFR 263. Before transporting the PCB waste, sign and date the manifest acknowledging acceptance of the PCB waste from the Government. Return a signed copy to the Government before leaving the job site. Ensure that the manifest accompanies the PCB waste at all times. Submit transporter certification of notification to EPA of their PCB waste activities (EPA Form 7710-53).

3.5.2.1 Certificate of Disposal and/or Recycling

40 CFR 761. Certificate for the PCBs and PCB items disposed shall include:

- a. The identity of the disposal and or recycling facility, by name, address, and EPA identification number.
- b. The identity of the PCB waste affected by the Certificate of Disposal including reference to the manifest number for the shipment.
- c. A statement certifying the fact of disposal and or recycling of the identified PCB waste, including the date(s) of disposal, and identifying the disposal process used.
- d. A certification as defined in 40 CFR 761.

APPENDIX A

U.S. Army Corps of Engineers

Kansas City District



Appendix A:

Data Summary Report

Operable Unit 2 - Building Demolition

Cornell-Dubilier Electronics Superfund Site
South Plainfield, NJ

USACE Contract No. W912DQ-06-D-0006
Task Order No. 0001

October 2006

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CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE
BUILDINGS DATA SUMMARY REPORT
FOR OPERABLE UNIT 2 (OU-2)
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LIST OF ATTACHMENTS

Attachment

A	Historical Site Data from 2002 Remedial Investigation
B	Project Data Quality Objectives
C	Buildings Data Validation Summary

ABBREVIATIONS AND ACRONYMS

ACM	Asbestos-Containing Material
Ag	Silver
ASHERA	Asbestos Hazard Emergency Response Act
AIHA	American Industrial Hygiene Association
Al	Aluminum
As	Arsenic
ASTM	American Society for Testing and Materials
Ba	Barium
Be	Beryllium
Bldg.	Building
BS	Blank/Blank Spike
Ca	Calcium
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
Cd	Cadmium
CFR	Code of Federal Regulation
CLP	Contract Laboratory Program
Co	Cobalt
COC	Chain-Of-Custody
COPC	Constituents of Potential Concern
Cr	Chromium
Cu	Copper
CVAA	Cold Vapor Atomic Adsorption
DQO	Data Quality Objective
ECD	Electron Capture Detector
EM	Engineering Manual
Fe	Iron
FSP	Field Sampling Plan
GC	Gas Chromatography

HVAC	Heating, Ventilation, and Air Conditioning
ICB	Initial Calibration Blank
ICP	Inductively Coupled Plasma Spectroscopy
ICP-AES	Inductively Coupled Plasma-Atomic Emission Spectroscopy
ICS	Interference Check Sample
ICV	Initial Calibration Verification
K	Potassium
LCS	Laboratory Control Samples
Mg	Magnesium
Mn	Manganese
MS/MSD	Matrix Spike/Matrix Spike Duplicate
Na	Sodium
NESHAP	National Emission Standards for Hazardous Air Pollutants
Ni	Nickel
NJ	New Jersey
NIOSH	National Institute for Occupational Safety and Health
NVLAP	National Voluntary Laboratory Accreditation Program
OSHA	Occupational Safety and Health Administration
OU-2	Operable Unit 2
PAH	Polycyclic Aromatic Hydrocarbon
Pb	Lead
PCB	Polychlorinated Biphenyl
PLM	Polarized Light Microscopy
PPE	Personal Protective Equipment
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
RPD	Relative Percent Difference
Sb	Antimony

Se	Selenium
SOW	Scope of Work
SSHP	Site Safety and Health Plan
STL	Severn Trent Laboratories
TAL	Target Analyte List
TCE	Trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
TSCA	Toxic Substances Control Act
TSI	Thermal System Insulation
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
V	Vanadium
Zn	Zinc

1.0 INTRODUCTION

1.1 Purpose and Scope

This Buildings Data Summary Report provides an overall description of the collection, analysis and evaluation of data for the buildings in Operable Unit 2 (OU-2) of the Cornell-Dubilier Electronics Superfund Site (Site) in accordance with the response action selected in the ROD. The field sample program was implemented in accordance with the Buildings Field Sample Plan (FSP, Malcolm Pirnie, January 2006).

1.2 Site History and Contaminants

Cornell-Dubilier Electronics operated in what is now the Hamilton Industrial Park from 1936 to 1962, manufacturing electronic components including capacitors. Polychlorinated biphenyls (PCBs) and chlorinated organic degreasing solvents were used in the manufacturing process and it has been alleged that during Cornell-Dubilier Electronics' period of operation, the company disposed of PCB-contaminated materials and other hazardous substances at the facility. A former employee has claimed that the rear of the property was saturated with transformer oils and that capacitors were also buried behind the facility during the same time period (Foster Wheeler, 2002). Based on historic site practices, portions of the Site have the potential to be contaminated with asbestos, lead, mercury, PCBs, TCE and dechlorination products, and other constituents of potential concern (COPCs). Historical Site data pertaining to the buildings was collected by others between 1997 and 2002 and are summarized in the Final Remedial Investigation Report for OU-2 On-Site Soils and Buildings (Foster Wheeler, 2002). Summary tables of historical Site data pertaining to OU-2 buildings collected by others are included in Attachment A. A Site location map and a Site Plan with cluster designations ('clusters' as defined in the design drawings') are included as Figures 1 and 2.

2.0 PRE-DESIGN FIELD ACTIVITIES FOR OU-2 BUILDINGS

2.1 General

Pre-Design field activities for OU-2 buildings took place between April 19 and May 3, 2006 and additional activities which included the sampling of roofing materials took place on June 7 and 8, 2006. Sampling activities at the Site aided in the identification of the extent of asbestos, mercury and PCB materials, and metals contamination in the Site buildings, as well as provided guidance on potential disposal requirements based on Resource Conservation and Recovery Act (RCRA) Toxicity Characteristic Leaching Procedure (TCLP) sampling. Building material quantities were also determined through survey activities. The photographic log documenting field activities is presented in the Design Drawings. Sample locations, material type, and analytical results are discussed in Sections 2.0 and 3.0, and summarized in Tables 1 through 46. Paint chip, window caulking, and core sample locations are also presented on Figures 3 through 14 of this document. Locations of Asbestos-Containing Materials (ACM) are presented in the design drawings.

2.2 Asbestos Investigation and Sampling

Malcolm Pirnie, Inc. provided an USEPA/AHERA-certified Asbestos Inspector to conduct an asbestos investigation in each of the buildings at the Cornell-Dubilier Site. The investigation was performed according to the following federal regulations:

- *40 CFR 61, National Emission Standards for Hazardous Air Pollutants (NESHAP), Subpart M – National Emissions Standards for Asbestos*
- *40 CFR 763, Asbestos Hazard Emergency Response Act (AHERA), Subpart E – Asbestos-Containing Materials in Schools*

These regulations call for a visual inspection of the buildings and associated structures for suspect ACM, and the analysis of the representative samples of such materials. Bulk ACM is identified as a material composed of asbestos of any type in an amount greater than 1% by weight either alone or mixed with other fibrous or non-fibrous materials. The buildings were inspected for three basic types of asbestos-containing building materials:

- ***Surfacing Material*** that is sprayed-on, troweled-on or otherwise applied to surfaces, such as acoustical plaster on ceilings, fireproofing materials on structural members, or other materials for acoustical, fireproofing, or decorative purposes.
- ***Thermal System Insulation (TSI)*** applied to pipes, fittings, boilers, breaching, tanks, ducts, or other structural components to prevent heat loss or gain and water condensation.
- ***Miscellaneous Materials*** on structural components, structural members or fixtures, such as floor and ceiling tile, laboratory bench tops, transite panels, transite pipe, and other materials that are not classified as TSI or surfacing materials. Due to the poor conditions of existing roofs, only the roofing materials on the periphery of the roofs were sampled.

2.2.1 Sample Locations

Table 1 indicates the number of asbestos samples by matrix and location, analytical parameters, and analytical results. Specific locations for sampling within each building were selected by the field team during the investigation.

2.2.2 Sample Collection

A total of 653 suspected ACM samples were collected for laboratory analysis. In the Final Buildings FSP and FSP Addendum, it was estimated that a total of 675 samples would be collected from each of the building interiors and roofs for laboratory analysis. This estimate was based on the assumption that up to seven different suspect materials may be discovered in each building during the investigation. The actual number of samples collected varied from the estimate due to variations in suspect material types within the buildings. Several building roofs including buildings 6, 13, 15, 16 and the second story roofs of buildings 1D, bldg. 3/4, bldg. 5, bldg. 5A were inaccessible and therefore samples were not collected from these locations. Additionally, it was unclear if the buildings 11 & 12 had a roofing material/flashing (the tops of these buildings were inaccessible).

The bulk sample investigation for ACM in the buildings was conducted in accordance with the FSP using the following protocol:

1. The Inspector inventoried suspect ACM in each building and recorded the locations, descriptions, and quantities of the suspect materials.
2. Suspect materials were then grouped according to functional spaces (i.e., spatially distinct units within a building, such as an office or a corridor) and homogenous sampling areas (i.e., ACM which is uniform in texture, color, and appearance) to determine appropriate sample locations and accurate quantities of each suspect material.
3. Suspect roofing materials were grouped according to homogenous sampling areas (i.e., ACM which is uniform in texture, color, and appearance) to determine appropriate sample locations and accurate quantities of each suspect roofing material.
4. In general, a minimum of three (3) random, full-depth, core samples were collected for each suspect material that was identified, with the exception of samples taken from the roofs. However, depending upon the size of the homogeneous sampling area and the discretion of the Inspectors, additional samples were collected from each functional space/sampling area.
5. In general, a minimum of one (1) random, full-depth, core sample and one (1) flashing sample were collected from the edge of each building roof. The Inspectors accessed each sampling area by ladder. Due to condition of the roofs, the Inspector did not climb onto the roofs to collect samples.
6. Each roof core sample included all layers of roofing materials down to the roof substrate. If a building had multiple, distinct roofing sections, a sample set (i.e., one core sample and one flashing sample) was collected from each section, as long as it was safely accessible by ladder.
7. Prior to sample collection, amended water (i.e., a solution consisting of water and a surfactant) was used to saturate the suspect material. In addition, the Inspector collecting the sample donned a new pair of disposable nitrile gloves. Prior to the

collection of friable asbestos samples, the Inspector donned a negative pressure, full-face respirator equipped with HEPA/P-100 cartridges.

8. Common construction tools (e.g., utility knives, screw-drivers, pliers, etc.) were used to collect each sample. Decontamination of each tool was performed in accordance with Section 5.1.6 of the FSP.
9. Each sample that was collected was containerized and labeled with a unique sample number (see Section 2.7). In addition, all pertinent data related to the sampling event (e.g., sample location maps, material descriptions, sample numbers, material quantities, etc.) was recorded in the field notebook and on building maps.
10. At the conclusion of each roof material sampling, the Inspector applied a non-asbestos containing roof tar to the sample location.

2.2.3 QA/QC Sample Frequency and Collection

For QA/QC purposes, duplicate samples were collected from approximately 5% of the total number of samples (i.e., from all buildings) that were submitted to the laboratory. Duplicate samples were collected by splitting sample material into two parts. Each part was labeled with a sample number and sent to the laboratory for analysis. The specific location of each duplicate sample was based on the discretion of the Inspectors. A total of 35 duplicate samples were analyzed.

2.2.4 Laboratory Measurement Procedures and Criteria

Samples were analyzed by a laboratory accredited by the American Industrial Hygiene Association (AIHA) and certified by the National Voluntary Laboratory Accreditation Program (NVLAP). Samples were analyzed in accordance with the analytical methods described in the Buildings QAPP (Malcolm Pirnie, 2006). The results are reported as a percentage of the total sample on a weight basis.

The laboratory was directed to analyze individual samples within a sample set (e.g., three samples collected from a single suspect material would be one sample set) until a result was obtained indicating the presence of asbestos. In such cases, the remaining samples in the sample set would not be analyzed. Asbestos sampling results are included in Table 1.

2.2.5 Sample Containers and Preservation Techniques

Samples were containerized in clean, plastic, zip-lock bags for transport to the laboratory. No special preservation techniques were necessary for maintaining the suspect asbestos samples for shipment to the laboratory.

2.2.6 Decontamination Procedures

Each time a sample was collected, a new pair of disposable nitrile gloves was used to prevent cross-contamination. In addition, non-dedicated sample collection tools were decontaminated between sample locations in accordance with the Buildings FSP (Malcolm Pirnie, 2006).

2.3 PCB-Containing Materials Investigation and Sampling

Malcolm Pirnie investigated paint and window caulking in each of the buildings at the Cornell-Dubilier Site for the presence of PCBs. Under the Toxic Substances Control Act (TSCA), a material is generally considered PCB-containing if it has a concentration of PCBs \geq 50 ppm. At the request of USEPA during the field investigation, a sample of an embedded wood block was collected from a drum in Building 1C and analyzed for the presence of PCBs and polycyclic aromatic hydrocarbons (PAHs). Additionally, the Shed adjacent to Bldg. 10 was added to the sampling plan in the field at the request of USEPA. These samples were not included in the Final Buildings FSP or QAPP (Malcolm Pirnie, 2006).

2.3.1 Sample Locations

Table 2 indicates the number of samples by matrix and site, analytical parameters and associated QA/QC samples. Specific locations within each building were determined by the field team during the investigation (see Figures 3 through 14).

2.3.2 Sample Collection

A total of 71 samples were collected from buildings based on observation of building materials. In the Final Buildings FSP, it was estimated that a total of 54 samples (including one paint chip sample and one window caulking sample from each building) would be collected for

laboratory analysis. The actual sample count varied from the estimate due to the collection of additional samples in each building and the collection of duplicates and MS/MSD samples.

The bulk sample investigation for PCB-containing window caulking was conducted using the following protocol:

1. The Malcolm Pirnie Field Team inventoried suspect window caulking in each building and used their discretion as to where they collected the bulk sample. Attempts were made to locate and sample the oldest caulking in each building by visual inspection.
2. Disposable tools (e.g., using a utility knife and dedicating a new blade for each sample location) were used to collect each sample. Sheets of aluminum foil were used to transfer the sample material into individual sample containers. As a result, no equipment decontamination was needed.
3. Each sample that was collected was containerized and labeled with a unique sample number in accordance with Section 2.7. In addition, pertinent data related to the sampling event (e.g., sample location maps, sample numbers, material quantities, etc.) were recorded in the field notebook and on building maps.

The following procedure was used for collecting paint chip samples:

1. The Field Team Member collecting the sample used a disposable paint scraper to remove all layers of paint down to the bare substrate at each selected sample location. The paint chips were collected on sheets of aluminum foil, which were used to transfer the chips into individual sample containers.
2. Each sample that was collected was containerized and labeled with a unique sample number (see Section 2.7). In addition, pertinent data related to the sampling event (e.g., sample location maps, substrate/component descriptions, sample numbers, etc.) were recorded in the field notebook and on building maps.

2.3.3 QA/QC Sample Frequency and Collection

For QA/QC purposes, duplicate samples were collected for approximately 3% of the total number of window caulking samples (i.e., from all buildings) that were submitted to the laboratory and MS/MSD samples were collected from approximately 5% of the total number of samples (i.e., from buildings) that were submitted to the laboratory. Additionally, duplicate samples were collected from approximately 3% of the total number of paint chip samples and MS/MSD samples were collected from approximately 5% of the total number of samples (i.e., from buildings) that were submitted to the laboratory. Duplicate samples were collected by splitting a sample into two parts. Each part was then labeled and sent to the laboratory for analysis. The specific location where each duplicate sample was collected was based on the discretion of the Field Team. A total of two duplicate samples and four MS/MSD samples were analyzed from window caulking. A total of two duplicate samples and four MS/MSD samples were analyzed from the paint chips.

2.3.4 Laboratory Measurement Procedures and Criteria

Paint chip samples and window caulking samples were analyzed by an AIHA accredited laboratory. Samples were analyzed for Total (Aroclor) PCBs in accordance with the analytical methods described in the QAPP (Malcolm Pirnie, 2006).

2.3.5 Sample Containers and Preservation Techniques

Paint chip samples and window caulking samples were containerized in pre-cleaned, glass containers for transport to the laboratory. No special preservation techniques were necessary for maintaining the paint chips or window caulking samples until their arrival at the laboratory.

2.3.6 Decontamination Procedures

Each time a sample was collected, a new pair of disposable nitrile gloves, a new sheet of aluminum foil, and a new disposable paint scraper or utility knife blade were used to prevent cross-contamination. At the conclusion of each sampling event, the sample location was cleaned as necessary by the Field Team, and any disposable items generated including but not limited to nitrile gloves, disposable paint scrapers, utility knife blades, and paper towels were collected and disposed of in accordance with procedures described in Section 8.0 of the Buildings FSP.

2.4 Core Sampling Investigation

Malcolm Pirnie conducted core sampling in each of the buildings at the Cornell-Dubilier Site. The sampling was conducted to determine the presence of PCBs and/or metals within building floors and walls prior to demolition and disposal. This information was used to assist in quantity take-offs for hazardous and non-hazardous wastes (i.e., for providing guidance on disposal requirements).

2.4.1 Sample Locations

Table 3 indicates the number of samples by matrix and site, analytical parameters, and associated QA/QC samples. Specific locations within each building were determined by the field team during the investigation (see Figures 3 through 14).

2.4.2 Sample Collection

A total of 87 core samples were collected. Field personnel attempted to collect full-depth cores from all locations in order to obtain results that are representative of the actual material conditions. It was estimated in the Buildings FSP that up to 108 core samples would be collected in each subdivided building from load-bearing walls and from the floors, based upon the discretion of the Field Team. The actual number of core samples collected varied from the estimate due to limited access issues to interior walls and floors and the nature of the sample matrix.

The following procedure was used for collecting core samples:

1. Locations for the collection of a core sample were selected based on the discretion of Malcolm Pirnie's Field Team. Factors such as visible staining, deteriorated substrates, building usage, accessibility, and building/sub-building configuration were taken into consideration when choosing a core sample location.
2. At each sampling location, the Field Team Member donned a new pair of disposable nitrile gloves, and safety glasses or goggles, hearing protection (e.g. earplugs), and tyvek.
3. During sampling of a wall a new piece of polyethylene sheeting was placed underneath the sampling location to catch any chips or other debris produced during collection of the core sample.

4. The subcontracted driller placed the coring device against the area to be sampled.
5. The coring device was activated and the bit advanced into the surface (wall or floor), while deionized water was used to cool the device.
6. Once the bit had advanced through the entire depth of the surface (wall or floor), the coring device was removed and the core sample retrieved.
7. Sample bags were labeled with the required information (see Section 2.7), and pertinent information associated with the sampling event (e.g. sample location, maps, sample numbers, etc.) was recorded in the field notebook.
8. The whole core was placed into the appropriately labeled re-sealable plastic bag, the air was evacuated, and the bag was sealed tightly. The bagged core was then placed into a second bag, sealed tightly, and stored in a cooler with ice.

2.4.3 QA/QC Sample Frequency and Collection

For QA/QC purposes, duplicate samples were collected for approximately 5% of the total number of core samples, and MS/MSD samples were collected for approximately 5% of the total number of core samples (i.e., from all buildings) that were submitted to the laboratory. The specific locations designated for duplicate sample collection were based on the discretion of the Field Team and were noted on the COC transmitted to the analytical laboratory. One equipment blank was taken for every ten decontaminations of non-dedicated sampling equipment. A total of four duplicates, four MS/MSD samples, and six equipment blanks were analyzed for the coring investigation.

2.4.4 Laboratory Measurement Procedures and Criteria

Core samples were analyzed by a laboratory accredited by the AIHA. Samples were analyzed for Total (Aroclor) PCBs, TAL (Total) metals, and RCRA metals (to assess the applicability of any RCRA disposal requirements). Samples were analyzed in accordance with the analytical methods described in the Final Buildings QAPP (Malcolm Pirnie, 2006).

2.4.5 Sample Containers and Preservation Techniques

Core samples for metals and PCB analysis were containerized in new re-sealable plastic bags and preserved in coolers at 4°C until arrival at the analytical laboratory. As mentioned above, samples were double-bagged.

2.4.6 Decontamination Procedures

Each time a sample was collected, a new pair of disposable nitrile gloves and a new length of plastic sheeting (as needed) were used to prevent cross-contamination. At the conclusion of each sampling event, any debris that was generated was collected and sealed in plastic bags for disposal by the Field Team. In addition, non-disposable sample collection tools (e.g., drill bit or chisel) were decontaminated between sample locations in accordance with the Buildings FSP. At the conclusion of each sampling core, the sample location was cleaned as necessary by the Field Team, and any PPE or other debris that was generated was collected and sealed in plastic bags for disposal in the domestic waste stream.

2.5 Inventory of Mercury and PCB-Containing Materials

Malcolm Pirnie conducted an inventory of potential mercury, PCB-containing, and creosote-containing materials in each of the buildings at the Cornell-Dubilier Site. Rooms within Site buildings were systematically searched for the purposes of identifying items such as fluorescent light ballasts/bulbs, mercury vapor lamps, thermostats, mercury switches, creosote containing wood blocks, etc. Pertinent data related to the visual inventory (e.g., material location maps, material descriptions, material quantities, etc.) was recorded in the field notebook and on building maps. Inventory data are summarized in the Design Drawings.

2.6 Quantity Takeoff Survey of Site Building Materials

Malcolm Pirnie performed a quantity takeoff survey for building materials at the Site on April 20 through April 24, 2006. Information collected was recorded on drawings and field sketches and subsequently tabularized in spreadsheet format for calculation of quantities. The building material quantities were broken down by material type for calculation of waste to be generated and to serve as the basis of the Bid Schedule which is included with the Contract Specifications.

In general, the field activities were conducted as follows:

1. Dimension Measurements: Using fiberglass and steel measuring tapes and survey rods, the outside building dimensions, interior partition wall dimensions, and basements within the buildings were measured and documented as described above. The measurements were used to prepare the plan and elevation views of the buildings shown on the Contract Drawings. Since the utility chases at buildings 8 and 9 were not accessible without entering confined spaces, they were not documented.
2. Material Summary: A summary of the construction materials and framing type was developed for each building. The summarized quantities and material types for walls, floors, interior partitions, insulation (if visible), framing, utilities, HVAC systems, structural units, plumbing and electrical systems form the basis of the quantity takeoff sheets.
3. Photographic Log: Digital photos were taken of the interior of some and exterior elevation views of each building, where the building interiors were accessible. Photographs are included in the Contract Drawings.

2.7 Sample Documentation

Sample custody during the field investigations was performed in accordance with the procedures outlined in the Final Buildings FSP (Malcolm Pirnie, 2006).

2.8 Sample Identification System

Samples collected from the Site were identified with a sample label in addition to an entry on a chain-of-custody record. Indelible ink was used to complete sample labels and the chain-of-custody record. In addition, each sample was identified by a unique sample number. The sample identification scheme used is as follows:

Asbestos samples were labeled: *CD-ASB-1A-01* or *CDR-ASB-1A-01*

CD-ASB/CDR-ASB:	Project site and sample type (Cornell-Dubilier Asbestos sample or Cornell-Dubilier Roof Asbestos sample)
1A:	Building number where sample was collected
01:	Unique sample identification number

PCB bulk samples were labeled: *CD-PCB-1A-PC-01* or *WC-01*

CD-PCB:	Project site and type of sample (Cornell-Dubilier PCB sample)
1A:	Building number where sample was collected
PC or WC:	Paint Chip or Window Caulking
01:	Unique sample identification number

Core samples were labeled: *CD-COR-1A-F-01* or *W-01*

CD-COR:	Project site and type of sample (Cornell-Dubilier Core sample)
1A:	Building number where sample was collected
F or W:	Floor or Wall
01:	Unique sample identification number

Field blanks were labeled: *CD-WP-1A-FB*

CD-WP:	Project site and type of sample (Cornell-Dubilier Field Blank sample)
1A:	Building number where blank was collected
FB:	Field Blank

MS/MSD samples were labeled with the designation “MS/MSD” following the regular numbering system (e.g., *CD-COR-1A-F-01-MSMSD*). Any sample designated as a duplicate sample (regardless of the sample matrix) did not have any special designation that was a

variation of the numbering system; duplicates are intended to be 'blind' to the laboratory (i.e., the lab is not to know which sample correlates to which duplicate).

2.9 Health and Safety

FSP field tasks were conducted in accordance with the Buildings SSHP (Malcolm Pirnie, Inc., 2005). The field procedures were also consistent with the guidance contained in the following documents:

- OSHA Guidance Manual for Hazardous Waste Site Activities [prepared jointly by the USEPA, National Institute for Occupational Safety and Health (NIOSH), and OSHA].
- USACE's Safety and Health Requirements Manual, Engineering Manual (EM) 385-1-1 (USACE, 2003).

3.0 SAMPLE ANALYSIS AND RESULTS

3.1 Sample Analysis

Samples collected during the 2006 Buildings Pre-Design Field Program were sent to Severn Trent Laboratories (STL) located in Edison, NJ. Analytical results are summarized in Tables 1 through 47 (analytical reports can be provided if necessary). Sample locations are provided in Figures 3 through 14.

3.1.1 Project Data Quality Objectives

The overall QA objective was to develop and implement procedures for field sampling, chain-of-custody, laboratory analysis, and reporting that will provide scientifically sound results (i.e., data of known and documented quality that are adequate for their intended use) that can be used to make defensible decisions. The QA objectives required for the data collected and the analyses performed during the Cornell-Dubilier Electronics Superfund Site investigation activities were developed using the Data Quality Objective (DQO) process and are specifically identified in the Final Buildings QAPP (Malcolm Pirnie, 2006). This systematic planning process takes into consideration the intended data use, the available laboratory and field analysis procedures, and the available resources. The end result of this process is the development of quality requirements for each data collection activity. The DQOs for this project are documented in Attachment B. Based upon these DQOs, analytical methods that are capable of supporting the DQOs were selected (refer to Final Buildings QAPP Section 2.4 and 2.5; Malcolm Pirnie, 2006).

STL was responsible for pulverization of the cores to obtain sample aliquots. The analytical methods were selected based on the DQOs established for the project. When possible, the test methods selected were either USEPA methods or national consensus methods, such as those published by ASTM. The following subsections are summaries of the laboratory analytical methods; detailed information on analytical methods is included in Section 2.4 and 2.5 of the Final Buildings QAPP (Malcolm Pirnie, January 2006).

3.1.2 Asbestos Analysis

Asbestos analysis was based upon the polarized light microscopy (PLM) method and USEPA Method 600/R-93/116 Method for the Determination of Bulk Building Materials and CFR 40, 763 Subpart E which were described Section 5.0 of the Final Buildings FSP (Malcolm Pirnie, 2006).

Additional requirements for Asbestos analysis were promulgated in the New Jersey Register on June 5, 2006. These requirements include gravimetric sample preparation procedures, an initial analysis using PLM, point counting of samples that indicate less than or equal to 10 percent Asbestos based on the PLM analysis, and transmission electron microscopy (TEM) analysis of samples that indicate less than or equal to one percent Asbestos (including samples that contain no Asbestos) based on the PLM analysis. These requirements aid in the identification of non-friable organically-bound (NOB) Asbestos (*e.g.*, asphalt and vinyl floor tiles, mastics, caulking, and roofing materials) by removing organic material from the sample. The Asbestos samples collected by Malcolm Pirnie and described in this report were analyzed prior to the promulgation of the TEM requirements; standard PLM analysis was employed in accordance with the approved QAPP, which excludes the organic removal steps. Therefore, some samples that were reported to contain no Asbestos using standard PLM (*i.e.*, samples with a “None Detected” result in Table 1) may actually contain Asbestos that could not be detected using the standard procedures. A conservative approach was used for the data analysis in this report, and all sample materials believed to contain NOB Asbestos were considered positive for Asbestos.

3.1.3 PCB (Polychlorinated Biphenyl) Aroclor Method

PCB Aroclors in building materials were analyzed by Gas Chromatography (GC) coupled to an Electron Capture Detector (ECD) by USEPA Method SW-846-8082; the methodology is described in the USEPA SOW for Organic Analysis Multi-Media, Multi-Concentration (OLM04.3/SOM01.4 or the latest CLP SOW).

3.1.4 Metals Methods

Materials were analyzed for the Target Analyte List (TAL 23 metals) by SW-846 Method 6010B and for the eight RCRA TCLP metals by SW-846 Methods 6010B/7470A/7471A by Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES). Total mercury was

determined by SW-846 7470A/7471A employing Cold Vapor Atomic Adsorption (CVAA). Extraction for TCLP metals was by Method SW-846-1311.

3.2 Results

Asbestos, PCB, PAH, and metals data were validated in accordance with the applicable methods using the USEPA National Functional Guidelines as guidance. A summary of the data validation activities is presented in Attachment C.

3.2.1 Asbestos Investigation Results

A total of 550 samples were collected from the Site buildings, not including roofing materials, and analyzed for Asbestos using the methods described in the Final Buildings QAPP. Of the 550 samples analyzed, 370 samples were either classified as ACM by PLM analysis or considered positive for Asbestos (see discussion in Section 3.1.2). Of the 370 ACM samples, 25 were considered friable materials, and 45 samples were considered non-friable materials. Additionally, 85 samples were taken from the periphery of building roofs. All 85 samples were either classified as ACM by PLM analysis or considered positive for Asbestos. Of the 85 ACM samples, none contained friable materials, and 1 sample contained non-friable materials. A summary of Asbestos data is included in Table 1. ACM materials are shown on the Design Drawings.

3.2.2 PCB-Containing Materials Investigation Results

A total of 71 samples were collected from site buildings from window caulking (41 samples), paint chips (29 samples), and wood (one sample) and were analyzed for PCBs using the methods described above. Of the 71 samples taken, 18 paint chip samples, seven window caulking samples, and one wood sample contained PCB Aroclors which exceeded the TSCA regulatory limit of 50 mg/kg. The most prevalent Aroclor detected was Aroclor 1254, which is the most prevalent Aroclor found in PCB-containing paints. However, there were also frequent detections of Aroclor 1248 and 1260. The highest detected concentration of Aroclor 1254 was 52,000 mg/kg (Cluster 1, Building 6, sample number CD-PCB-06-PC-01). Total PAHs in the wood sample were measured at a concentration of 7,398 mg/kg. A summary of window

caulking, paint chip, and wood sample data is included in the Tables Section of this report which is organized by Cluster. Sample locations are shown on Figures 3 through 14.

3.2.3 Core Sampling Investigation Results

A total of 88 samples were collected from building walls and floor slabs. However, one core sample was misplaced by the laboratory and has not been located. Therefore 87 core samples were analyzed for PCBs, TCLP metals and TAL metals using the methods described above. Of the 87 samples analyzed, 14 contained PCB Aroclors which exceeded the TSCA regulatory limit of 50 mg/kg. Consistent with the window caulking and paint chip investigation results, the most prevalent Aroclor detected was Aroclor 1254; however there were also frequent detections of Aroclor 1248. Furthermore, the highest detected concentration of Aroclor 1254 was 2,200 mg/kg (Cluster 1, Building 6, sample number CD-COR-6-F-01).

Of the 87 samples taken only two contained metals in exceedance of RCRA regulatory TCLP limits for Lead (5 mg/l). The highest detected concentrations of TCLP lead were 9.3 mg/l and 10.6 mg/l in samples CD-COR-15-W-03 and CD-COR-13-W-04 (Cluster 8, buildings 15 and 13, respectively). The 87 core samples were also analyzed for TAL metals for the purpose of having additional characterization data. The TAL metals do not have a regulatory standard which is applicable to disposal of building materials. Some TAL metals data were rejected; refer to Attachment C for a discussion of data validation. Of the samples collected and analyzed for TAL metals, five of the RCRA metals on the TAL list were detected at concentrations of 100 ppm or greater. These include barium, lead, cadmium, chromium, and arsenic. A summary of PCB and metals data is included in the Tables Section of this report which is organized by Cluster.

3.2.4 Inventory of Mercury and PCB Containing Materials

The inventory of mercury and PCB containing materials are presented in the Design Drawings.

3.2.5 Quantity Takeoff Survey of Site Building Materials

The results for the quantity takeoff survey of building materials are presented in Appendix B of the Design Demolition Report.

4.0 CONCLUSIONS

4.1 General

This Buildings Data Summary Report provides an overall summary of the collection, analysis and evaluation of data for the buildings in OU-2 in accordance with the response action selected in the ROD. The field sample program was implemented in accordance with the Buildings Field Sample Plan (FSP, Malcolm Pirnie, January 2006).

4.2 Field Investigation

Pre-Design field investigation activities for OU-2 buildings took place between April 19th and May 3rd, 2006 and additional activities which included the sampling of roof perimeters took place on June 7 and 8, 2006. Sampling activities at the Site aided in the identification of the extent of asbestos, mercury and PCB materials, and metals contamination in the Site buildings. Samples were collected during the field investigation from April 20th through May 3rd, 2006. Samples were sent to Severn Trent Laboratories (STL) located in Edison, NJ.

4.3 Asbestos Investigation Results

- A total of 550 samples were taken from the Site buildings, not including roofing materials, and analyzed for Asbestos using the methods described in the Final Buildings QAPP.
- Of the 550 samples analyzed, 370 samples were either classified as ACM by PLM analysis or considered positive for Asbestos (see discussion in Section 3.1.2).
- Of the 370 ACM samples, 25 were considered friable materials, and 45 samples were considered non-friable materials.

- Additionally, 85 samples were taken from the periphery of building roofs.
- All 85 roofing material samples were either classified as ACM by PLM analysis or considered positive for Asbestos (see discussion in Section 3.1.2). Of the 85 ACM samples, none contained friable materials, and 1 sample contained non-friable materials.

4.4 PCB-Containing Materials Investigation Results

- A total of 71 samples were collected from site buildings from window caulking (41 samples), paint chips (29 samples), and wood (one sample) and were analyzed for PCBs using the methods described above.
- Of the 71 samples taken, 18 paint chip samples, seven window caulking samples, and one wood sample contained PCB Aroclors which exceeded the TSCA regulatory limit of 50 mg/kg.
- The most prevalent Aroclor detected was Aroclor 1254, which is the most prevalent Aroclor found in PCB-containing paints. However there were also frequent detections of Aroclor 1248 and 1260.
- The highest detected concentration of Aroclor 1254 was 52,000 mg/kg (Cluster 1, Building 6, sample number CD-PCB-06-PC-01).
- Total PAHs in the wood sample were measured at a concentration of 7,398 mg/kg.

4.5 Core Investigation Results

- A total of 87 core samples from building walls and floor slabs were analyzed for PCBs, TCLP metals and TAL metals.
- Of the 87 samples analyzed, 14 contained PCB Aroclors which exceeded the TSCA regulatory limit of 50 mg/kg.
- The most prevalent Aroclor detected was Aroclor 1254; however there were also frequent detections of Aroclor 1248.

- The highest detected concentration of Aroclor 1254 was 2,200 mg/kg (Cluster 1, Building 6, sample number CD-COR-6-F-01).
- Of the 87 samples analyzed only two contained metals in exceedance of RCRA regulatory TCLP limits for Lead (5 mg/l).
- The highest detected concentrations of TCLP lead were 9.3 mg/l and 10.6 mg/l in samples CD-COR-15-W-03 and CD-COR-13-W-04 (Cluster 8, buildings 15 and 13, respectively).
- The 87 core samples were also analyzed for TAL metals for the purpose of having additional characterization data. Some TAL metals data were rejected; refer to Attachment C for a discussion of data validation. Of the samples collected and analyzed for TAL metals, five of the RCRA metals on the TAL list were detected at concentrations of 100 ppm or greater. These include barium, lead, cadmium, chromium, and arsenic.

5.0 REFERENCES

US Army Corps of Engineers, 1 February 2001. "Requirements for the Preparation of Sampling and Analysis Plans." Engineer Manual. EM 200-1-3.

Tetra Tech-Foster Wheeler, Inc., April 2004. "Feasibility Study for Operable Unit 2 (OU-2) Facility Soils and Buildings" Cornell-Dubilier Electronics Superfund Site, South Plainfield, New Jersey.

United States Environmental Protection Agency, Region II, September 2004. "Record of Decision" Cornell-Dubilier Electronics Superfund Site, South Plainfield, New Jersey.

Tetra Tech-Foster Wheeler, Inc., December 2002. "Final Remedial Investigation Report for Operable Unit 2 (OU-2) On-Site Soils and Buildings – Volume I and II" Cornell-Dubilier Electronics Superfund Site, South Plainfield, New Jersey.

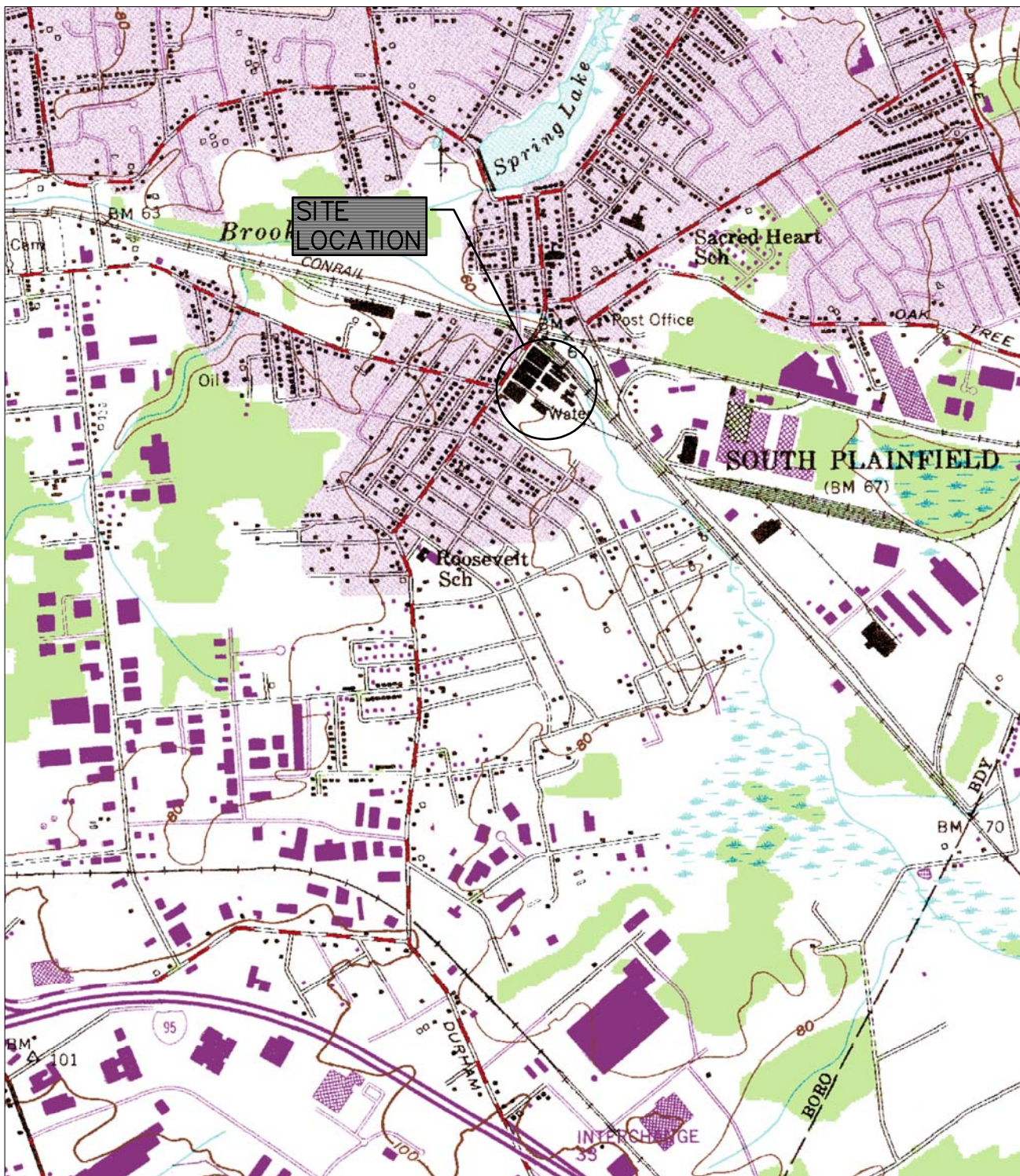
Malcolm Pirnie, Inc., February 2006. "Final Buildings Field Sample Plan."

Malcolm Pirnie, Inc., March 2006. "Final Buildings Quality Assurance Project Plan."

Malcolm Pirnie, Inc., March 2006. "Final Buildings Site Safety and Health Plan."

Malcolm Pirnie, Inc., June 2006. "Final Buildings Field Sample Plan Addendum."

FIGURES



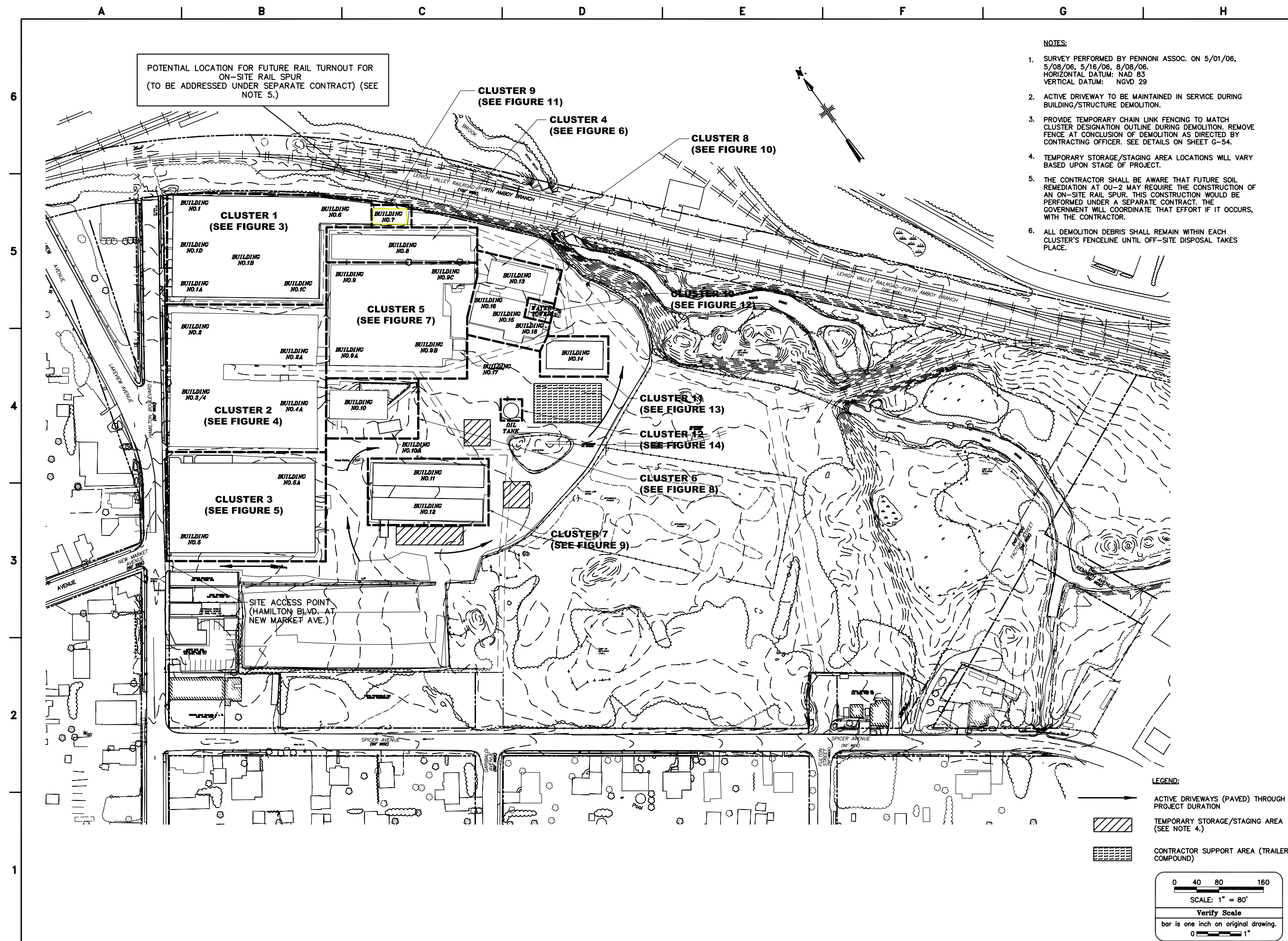
SOURCE: U.S.G.S. TOPOGRAPHIC MAP,
7.5 MINUTE SERIES, PLAINFIELD, NEW JERSEY
QUADRANGLE, 1955, PHOTOREVISED 1981

**MALCOLM
PIRNIE**

U.S. ARMY CORPS OF ENGINEERS
CORNELL-DUBILIER SUPERFUND SITE
OU-2 BUILDING DEMOLITION
SOUTH PLAINFIELD, NEW JERSEY
CONTRACT NO. W912DQ-06-D-0006

SITE LOCATION
MAP
SCALE AS NOTED

MALCOLM PIRNIE, INC.
OCTOBER 2006
FIGURE 1



NOTES:

1. SURVEY PERFORMED BY PENNONI ASSOC. ON 5/01/06,
5/08/06, 5/16/06, 8/08/06.
HORIZONTAL DATUM: NAD 83
VERTICAL DATUM: NGVD 29
2. ACTIVE DRIVEWAY TO BE MAINTAINED IN SERVICE DURING
BUILDING/STRUCTURE DEMOLITION.
3. PROVIDE TEMPORARY CHAIN LINK FENCING TO MATCH
CLUSTER DESIGNATION OUTLINE DURING DEMOLITION. REMOVE
FENCE AT CONCLUSION OF DEMOLITION AS DIRECTED BY
CONTRACTING OFFICER. SEE DETAILS ON SHEET G-54.
4. TEMPORARY STORAGE/STAGING AREA LOCATIONS WILL VARY
BASED UPON STAGE OF PROJECT.
5. THE CONTRACTOR SHALL BE AWARE THAT FUTURE SOIL
REMEDIATION AT OU-2 MAY REQUIRE THE CONSTRUCTION OF
AN ON-SITE RAIL SPUR. THIS CONSTRUCTION WOULD BE
PERFORMED UNDER A SEPARATE CONTRACT. THE
GOVERNMENT WILL COORDINATE THAT EFFORT IF IT OCCURS,
WITH THE CONTRACTOR.
6. ALL DEMOLITION DEBRIS SHALL REMAIN WITHIN EACH
CLUSTER'S FENCELINE UNTIL OFF-SITE DISPOSAL TAKES
PLACE.



**U.S. Army Corps
of Engineers
KANSAS CITY DISTRICT**

[illegible]

JEFFREY K. BENNETT
PROFESSIONAL ENGINEER
NJ LICENSE 24GE03690800

1000000

Designed by: JR	Date: 10/06	Approved by: JRB	Date: 10/06
Drawn by: TS	Date: 10/06		
Reviewed by: EAD	Date: 10/06	File Name: WHL-FIG-2	

U.S. ARMY ENGINEER DIVISION
CORPS OF ENGINEERS
KANSAS CITY DISTRICT
KANSAS CITY, MISSOURI

240A27071200
MALCOLM PIRNIE, INC.
104 CORPORATE PARK DRIVE
WHITE PLAINS, NEW YORK 10602

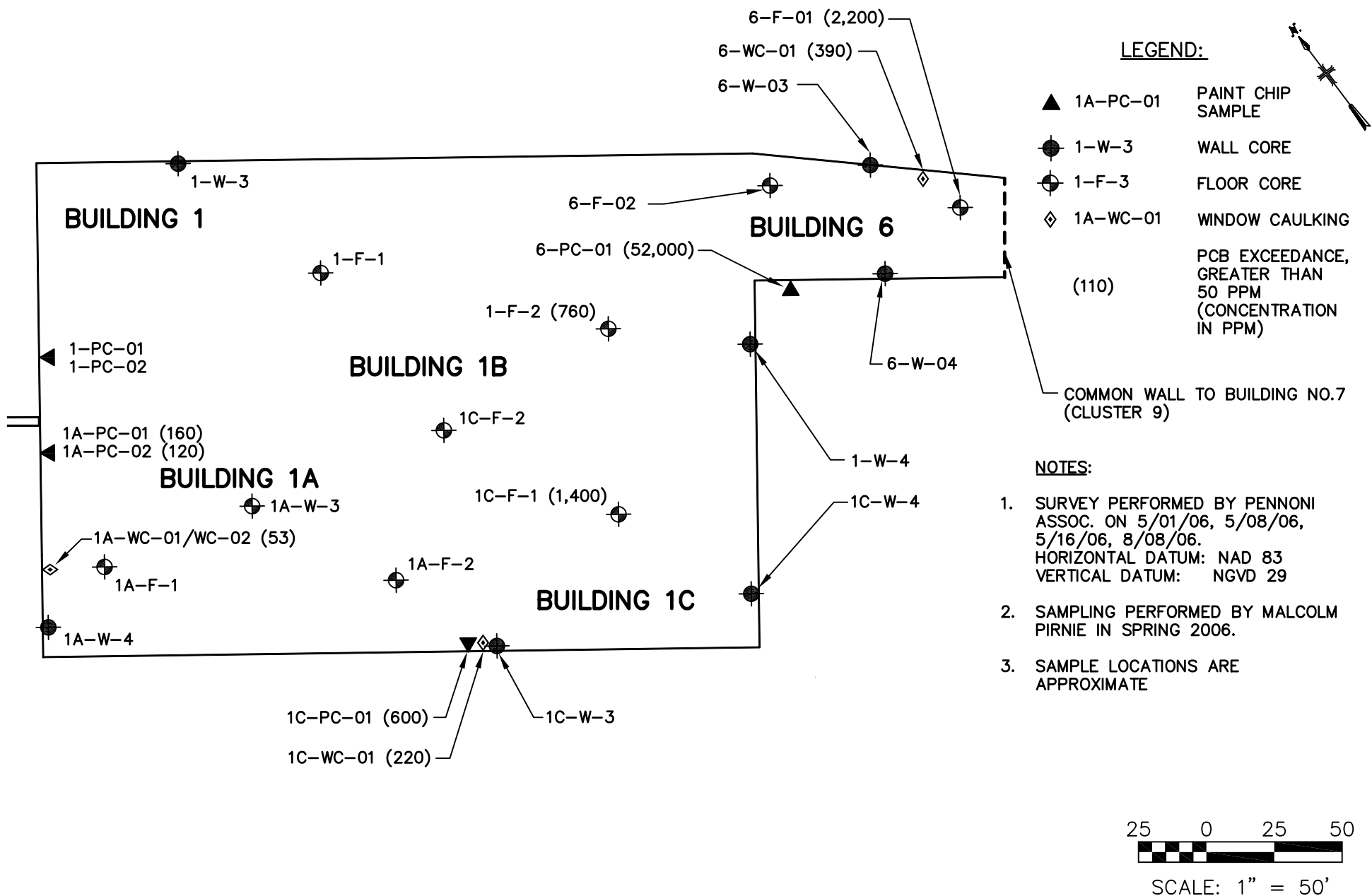
**CORNELL-DUBILIER ELECTRONICS
SUPERFUND SITE OU-2 BUILDING DEMOLITION
SOUTH PLAINFIELD, NEW JERSEY**

CLUSTER DESIGNATIONS

FIGURE 2

Sheet X of X

XREFS: F:\Projects\4553023\CADD\100%-XREF\4553023.DWG F:\Projects\4553023\CADD\100%-DESIGN\WHI\WHI-FIG-2.DWG Scale: 1:1 Date: 10/31/2006 Time: 11:25 Layout: Layout1
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IMAGES: None

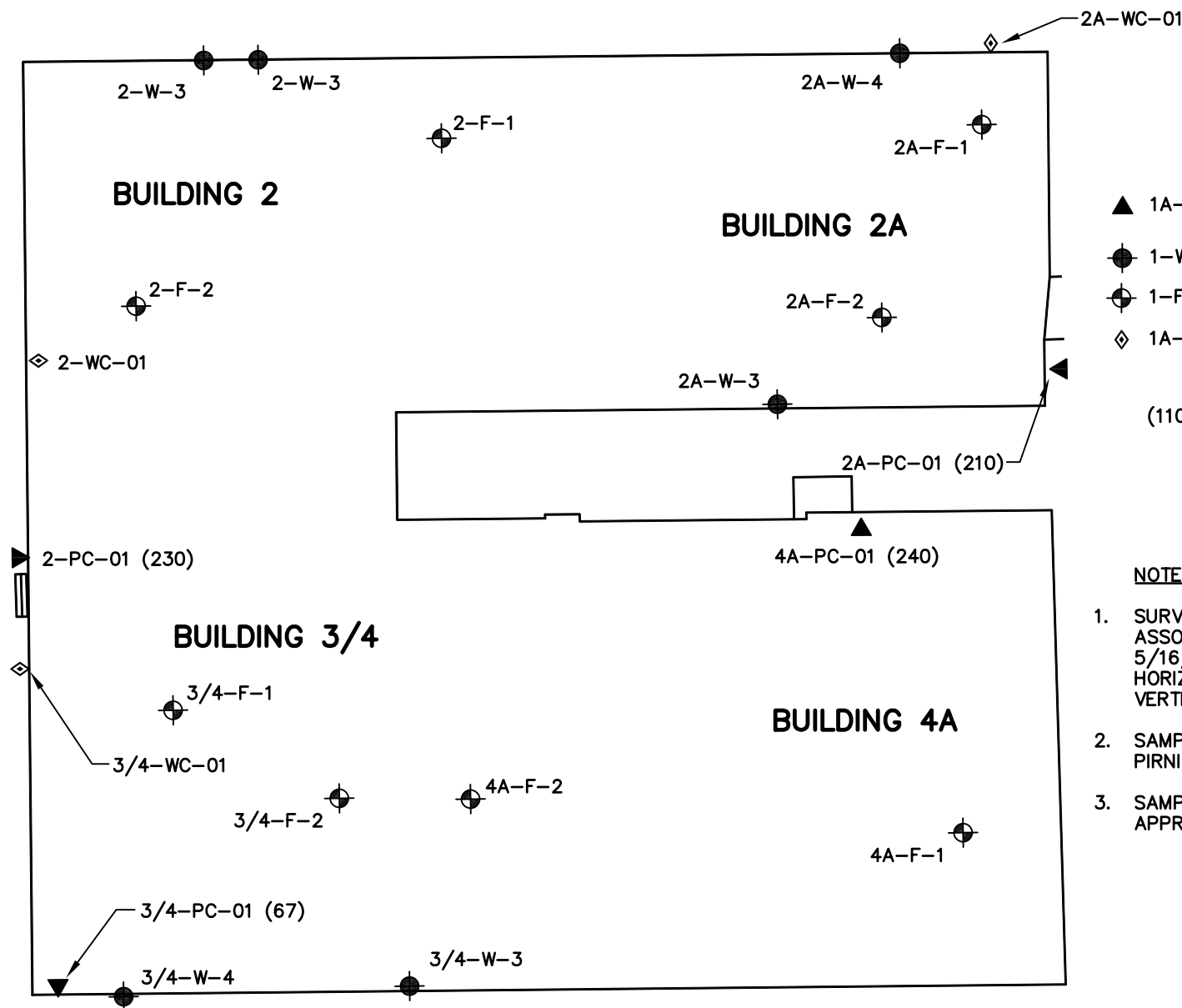


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CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE
OU-2 BUILDING DEMOLITION
SOUTH PLAINFIELD, NEW JERSEY
CONTRACT: W912DQ-06-D-0006

PAINT CHIP/WINDOW CAULKING AND CORING SAMPLE LOCATIONS
CLUSTER 1
BUILDINGS 1, 1A, 1B, 1C & 6
SCALE AS NOTED

MALCOLM PIRNIE, INC.
OCTOBER 2006
FIGURE 3

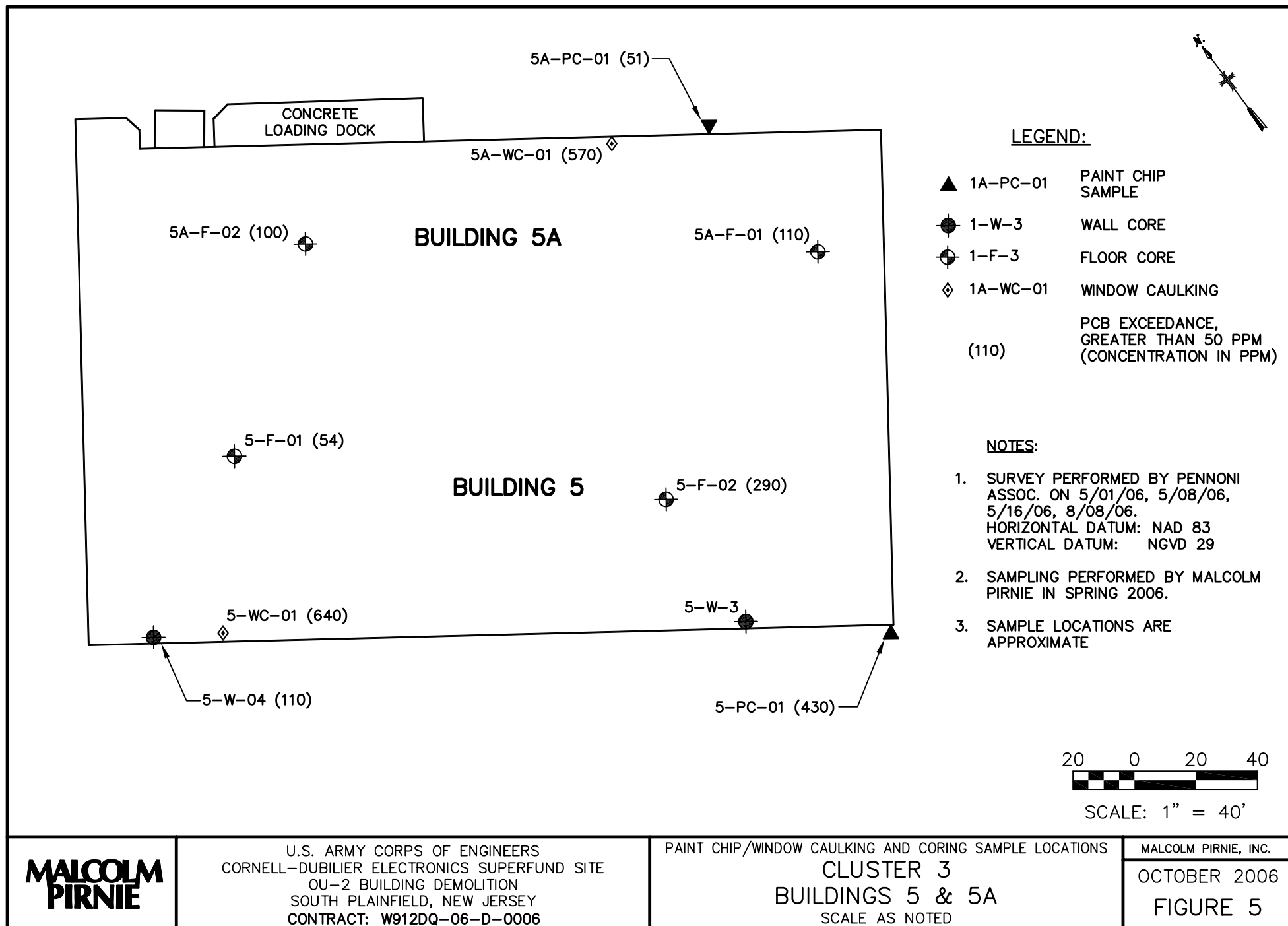


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OU-2 BUILDING DEMOLITION
SOUTH PLAINFIELD, NEW JERSEY
CONTRACT: W912DQ-06-D-0006

PAINT CHIP/WINDOW CAULKING AND CORING SAMPLE LOCATIONS
CLUSTER 2
BUILDINGS 2, 2A, 3/4 & 4A
SCALE AS NOTED

MALCOLM PIRNIE, INC.
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FIGURE 4



**MALCOLM
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OU-2 BUILDING DEMOLITION
SOUTH PLAINFIELD, NEW JERSEY
CONTRACT: W912DQ-06-D-0006

PAINT CHIP/WINDOW CAULKING AND CORING SAMPLE LOCATIONS
CLUSTER 3
BUILDINGS 5 & 5A
SCALE AS NOTED

MALCOLM PIRNIE, INC.
OCTOBER 2006
FIGURE 5



LEGEND:

- ▲ 1A-PC-01 PAINT CHIP SAMPLE
- 1-W-3 WALL CORE
- 1-F-3 FLOOR CORE
- ◇ 1A-WC-01 WINDOW CAULKING



NOTES:

1. SURVEY PERFORMED BY PENNONI ASSOC. ON 5/01/06, 5/08/06, 5/16/06, 8/08/06.
HORIZONTAL DATUM: NAD 83
VERTICAL DATUM: NGVD 29
2. SAMPLING PERFORMED BY MALCOLM PIRNIE IN SPRING 2006.
3. SAMPLE LOCATIONS ARE APPROXIMATE



SCALE: 1" = 40'

**MALCOLM
PIRNIE**

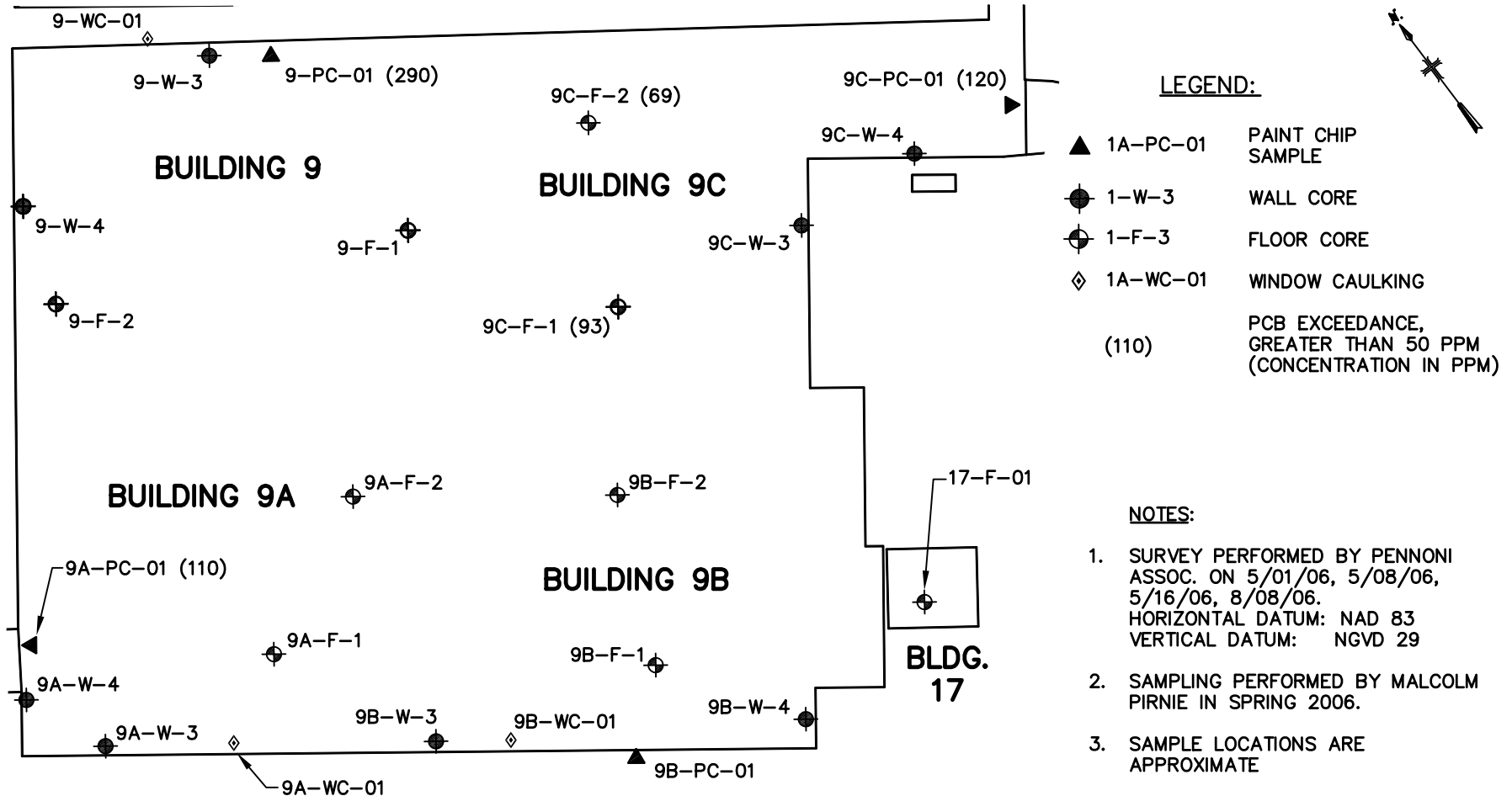
U.S. ARMY CORPS OF ENGINEERS
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE
OU-2 BUILDING DEMOLITION
SOUTH PLAINFIELD, NEW JERSEY
CONTRACT: W912DQ-06-D-0006

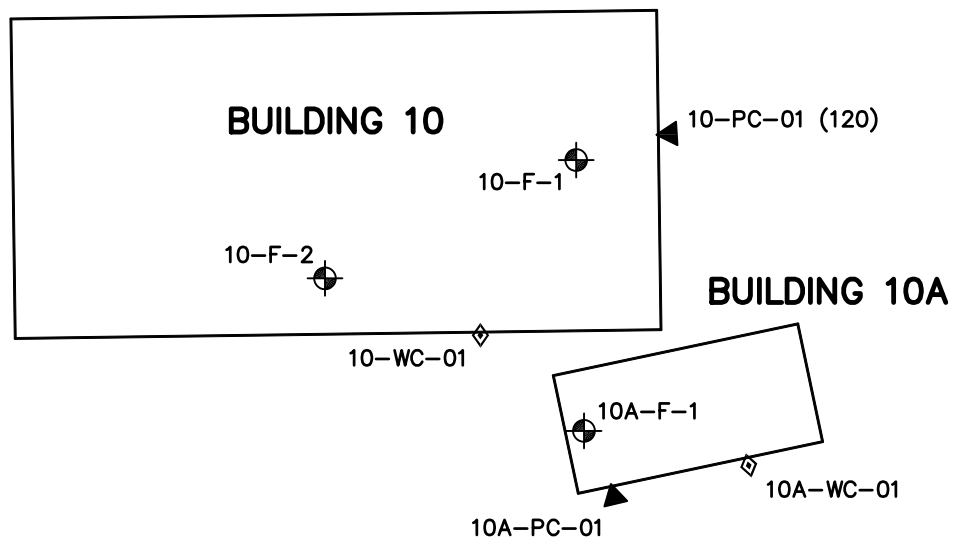
PAINT CHIP/WINDOW CAULKING AND CORING SAMPLE LOCATIONS
CLUSTER 4
BUILDING 8
SCALE AS NOTED

MALCOLM PIRNIE, INC.

OCTOBER 2006

FIGURE 6





LEGEND:

- ▲ 1A-PC-01 PAINT CHIP SAMPLE
- 1-W-3 WALL CORE
- 1-F-3 FLOOR CORE
- ◇ 1A-WC-01 WINDOW CAULKING
- (110) PCB EXCEEDANCE, GREATER THAN 50 PPM (CONCENTRATION IN PPM)

NOTES:

1. SURVEY PERFORMED BY PENNONI ASSOC. ON 5/01/06, 5/08/06, 5/16/06, 8/08/06.
HORIZONTAL DATUM: NAD 83
VERTICAL DATUM: NGVD 29
2. SAMPLING PERFORMED BY MALCOLM PIRNIE IN SPRING 2006.
3. SAMPLE LOCATIONS ARE APPROXIMATE



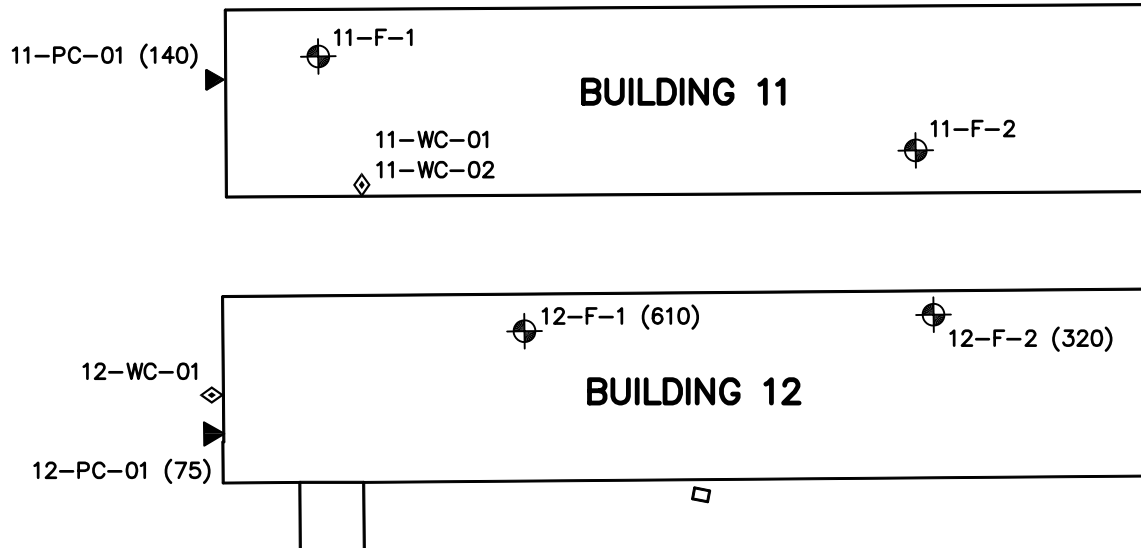
SCALE: 1" = 30'

**MALCOLM
PIRNIE**

U.S. ARMY CORPS OF ENGINEERS
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE
OU-2 BUILDING DEMOLITION
SOUTH PLAINFIELD, NEW JERSEY
CONTRACT: W912DQ-06-D-0006

PAINT CHIP/WINDOW CAULKING AND CORING SAMPLE LOCATIONS
CLUSTER 6
BUILDING 10 & 10A
SCALE AS NOTED

MALCOLM PIRNIE, INC.
OCTOBER 2006
FIGURE 8

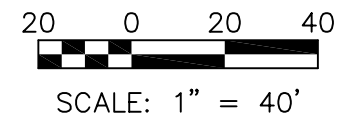


LEGEND:

- ▲ 1A-PC-01 PAINT CHIP SAMPLE
- 1-W-3 WALL CORE
- 1-F-3 FLOOR CORE
- ◇ 1A-WC-01 WINDOW CAULKING
- (110) PCB EXCEEDANCE, GREATER THAN 50 PPM (CONCENTRATION IN PPM)

NOTES:

1. SURVEY PERFORMED BY PENNONI ASSOC. ON 5/01/06, 5/08/06, 5/16/06, 8/08/06.
HORIZONTAL DATUM: NAD 83
VERTICAL DATUM: NGVD 29
2. SAMPLING PERFORMED BY MALCOLM PIRNIE IN SPRING 2006.
3. SAMPLE LOCATIONS ARE APPROXIMATE

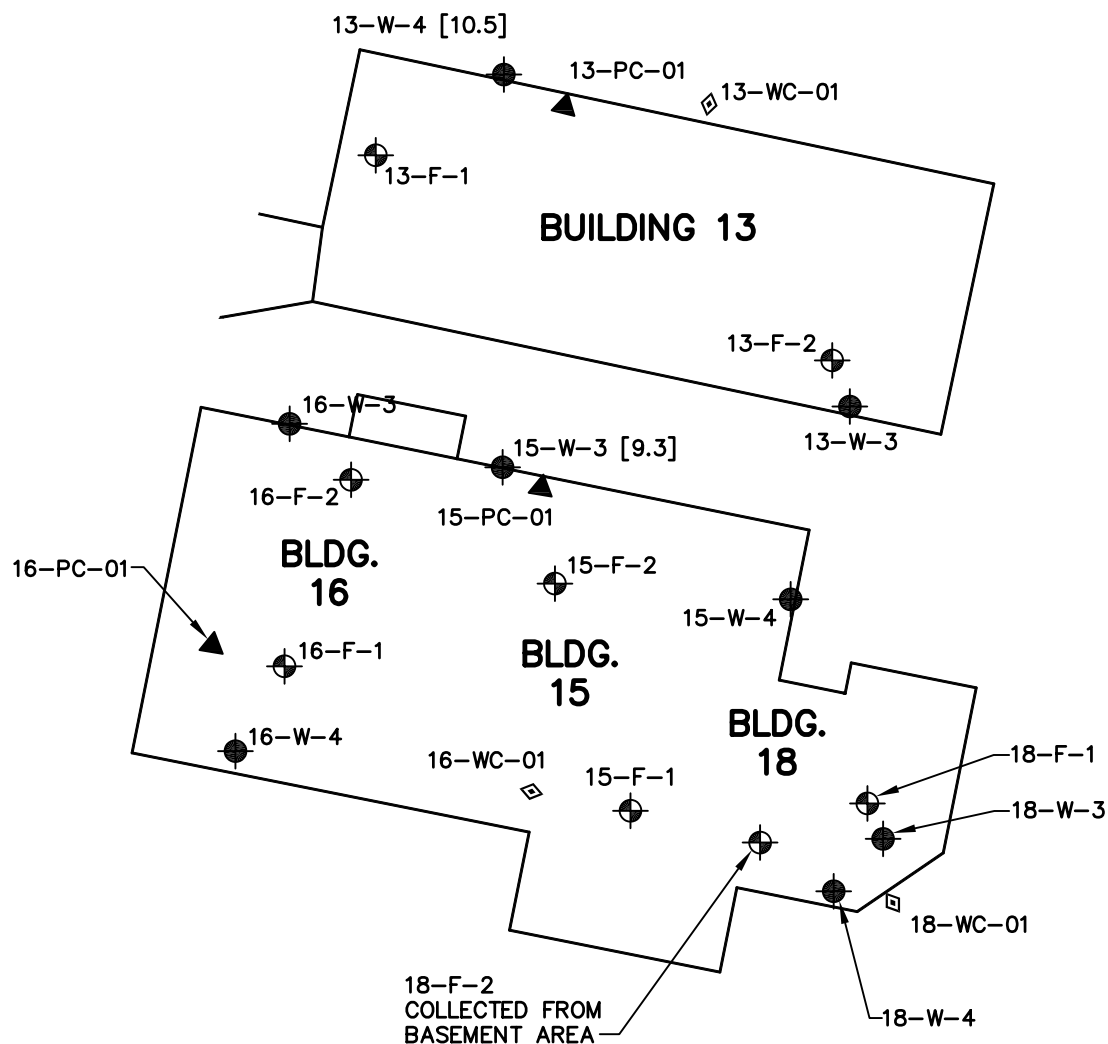


**MALCOLM
PIRNIE**

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CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE
OU-2 BUILDING DEMOLITION
SOUTH PLAINFIELD, NEW JERSEY
CONTRACT: W912DQ-06-D-0006

PAINT CHIP/WINDOW CAULKING AND CORING SAMPLE LOCATIONS
CLUSTER 7
BUILDINGS 11 & 12
SCALE AS NOTED

MALCOLM PIRNIE, INC.
OCTOBER 2006
FIGURE 9



LEGEND:

- ▲ 1A-PC-01 PAINT CHIP SAMPLE
- 1-W-3 WALL CORE
- 1-F-3 FLOOR CORE
- ◇ 1A-WC-01 WINDOW CAULKING

[10.5] RCRA EXCEEDANCE,
LEAD GREATER THAN 5 PPM
(CONCENTRATION IN PPM)

NOTES:

1. SURVEY PERFORMED BY PENNONI ASSOC. ON 5/01/06, 5/08/06, 5/16/06, 8/08/06.
HORIZONTAL DATUM: NAD 83
VERTICAL DATUM: NGVD 29
2. SAMPLING PERFORMED BY MALCOLM PIRNIE IN SPRING 2006.
3. SAMPLE LOCATIONS ARE APPROXIMATE



SCALE: 1" = 30'

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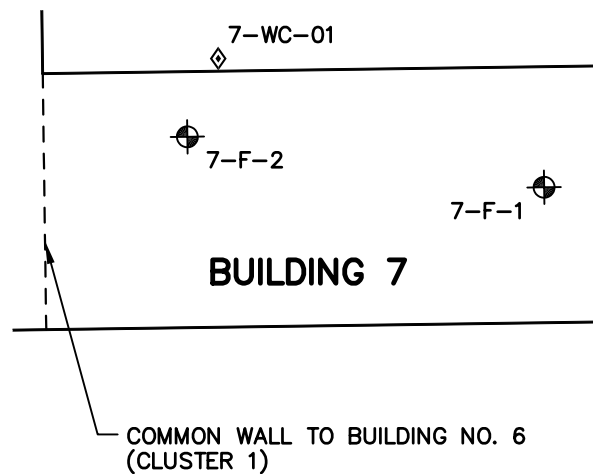
U.S. ARMY CORPS OF ENGINEERS
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE
OU-2 BUILDING DEMOLITION
SOUTH PLAINFIELD, NEW JERSEY
CONTRACT: W912DQ-06-D-0006

PAINT CHIP/WINDOW CAULKING AND CORING SAMPLE LOCATIONS
CLUSTER 8
BUILDINGS 13, 15, 16, & 18
SCALE AS NOTED

MALCOLM PIRNIE, INC.

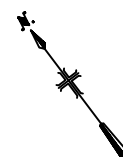
OCTOBER 2006

FIGURE 10



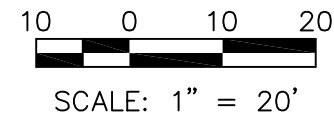
LEGEND:

- ▲ 1A-PC-01 PAINT CHIP SAMPLE
- 1-W-3 WALL CORE
- 1-F-3 FLOOR CORE
- ◇ 1A-WC-01 WINDOW CAULKING



NOTES:

1. SURVEY PERFORMED BY PENNONI ASSOC. ON 5/01/06, 5/08/06, 5/16/06, 8/08/06.
HORIZONTAL DATUM: NAD 83
VERTICAL DATUM: NGVD 29
2. SAMPLING PERFORMED BY MALCOLM PIRNIE IN SPRING 2006.
3. SAMPLE LOCATIONS ARE APPROXIMATE

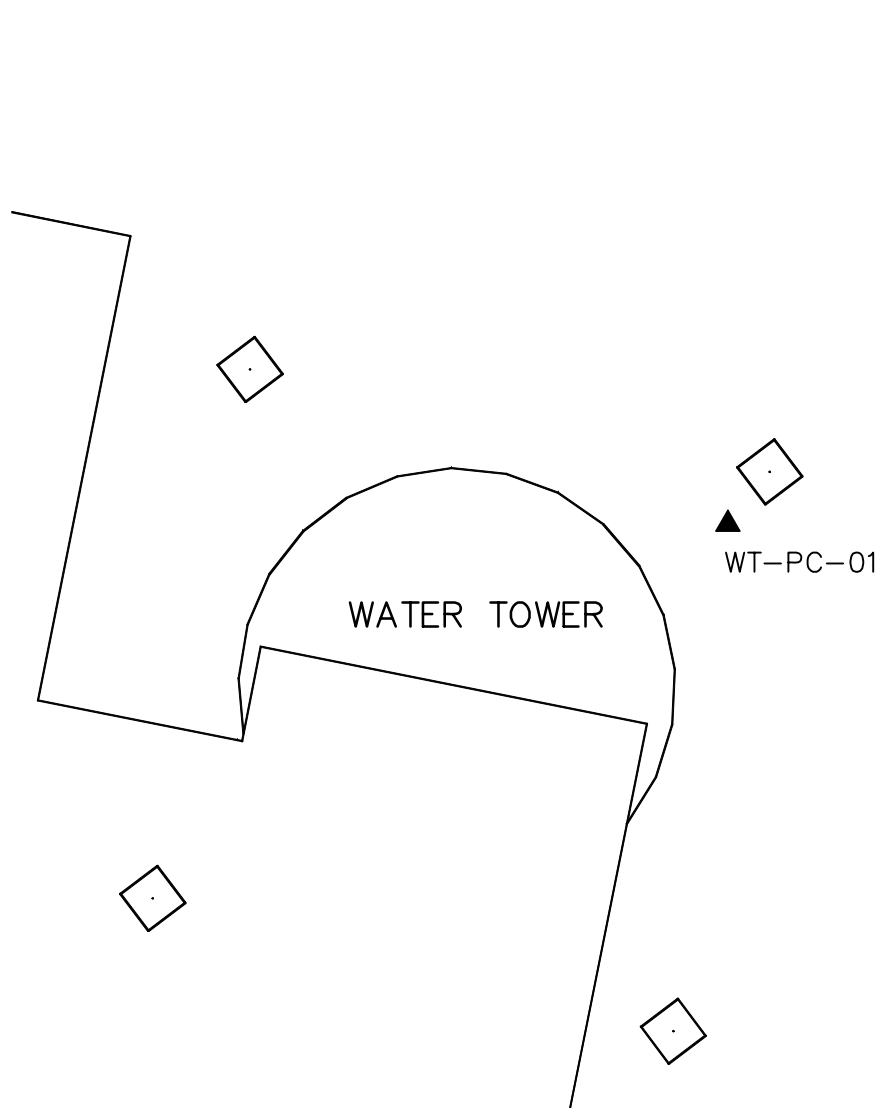


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CONTRACT: W912DQ-06-D-0006

PAINT CHIP/WINDOW CAULKING AND CORING SAMPLE LOCATIONS
CLUSTER 9
BUILDING 7
SCALE AS NOTED

MALCOLM PIRNIE, INC.
OCTOBER 2006
FIGURE 11



LEGEND:

- ▲ 1A-PC-01 PAINT CHIP SAMPLE
- 1-W-3 WALL CORE
- ⊙ 1-F-3 FLOOR CORE
- ◊ 1A-WC-01 WINDOW CAULKING

NOTES:

1. SURVEY PERFORMED BY PENNONI ASSOC. ON 5/01/06, 5/08/06, 5/16/06, 8/08/06.
HORIZONTAL DATUM: NAD 83
VERTICAL DATUM: NGVD 29
2. SAMPLING PERFORMED BY MALCOLM PIRNIE IN SPRING 2006.
3. SAMPLE LOCATIONS ARE APPROXIMATE.
4. SAMPLE WT-PC-01 WAS LOCATED ON THE FOOTING OF THE WATER TOWER. THE FOOTING IS NOT DEPICTED IN THIS FIGURE.



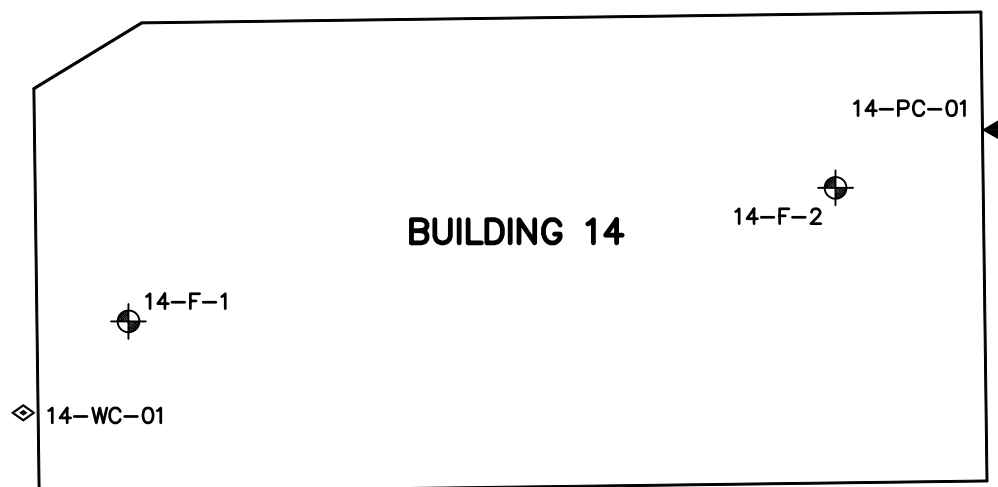
SCALE: 1" = 10'

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CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE
OU-2 BUILDING DEMOLITION
SOUTH PLAINFIELD, NEW JERSEY
CONTRACT: W912DQ-06-D-0006

PAINT CHIP/WINDOW CAULKING AND CORING SAMPLE LOCATIONS
CLUSTER 10
WATER TOWER
SCALE AS NOTED

MALCOLM PIRNIE, INC.
OCTOBER 2006
FIGURE 12



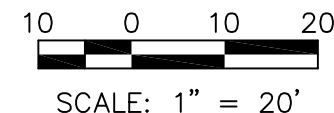
LEGEND:

- ▲ 1A-PC-01 PAINT CHIP SAMPLE
- 1-W-3 WALL CORE
- ⊕ 1-F-3 FLOOR CORE
- ◇ 1A-WC-01 WINDOW CAULKING



NOTES:

1. SURVEY PERFORMED BY PENNONI ASSOC. ON 5/01/06, 5/08/06, 5/16/06, 8/08/06.
HORIZONTAL DATUM: NAD 83
VERTICAL DATUM: NGVD 29
2. SAMPLING PERFORMED BY MALCOLM PIRNIE IN SPRING 2006.
3. SAMPLE LOCATIONS ARE APPROXIMATE

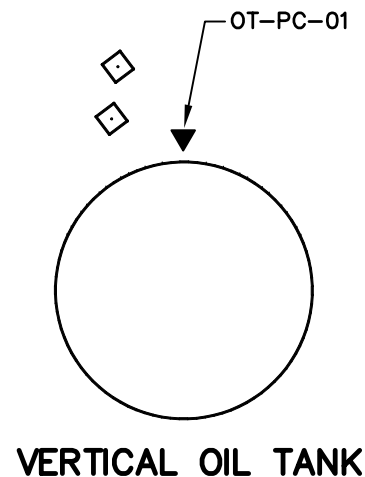


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CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE
OU-2 BUILDING DEMOLITION
SOUTH PLAINFIELD, NEW JERSEY
CONTRACT: W912DQ-06-D-0006

PAINT CHIP/WINDOW CAULKING AND CORING SAMPLE LOCATIONS
CLUSTER 11
BUILDING 14
SCALE AS NOTED

MALCOLM PIRNIE, INC.
OCTOBER 2006
FIGURE 13



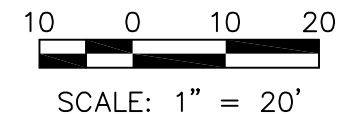
LEGEND:

- ▲ 1A-PC-01 PAINT CHIP SAMPLE
- 1-W-3 WALL CORE
- ⊙ 1-F-3 FLOOR CORE
- ◇ 1A-WC-01 WINDOW CAULKING



NOTES:

1. SURVEY PERFORMED BY PENNONI ASSOC. ON 5/01/06, 5/08/06, 5/16/06, 8/08/06.
HORIZONTAL DATUM: NAD 83
VERTICAL DATUM: NGVD 29
2. SAMPLING PERFORMED BY MALCOLM PIRNIE IN SPRING 2006.
3. SAMPLE LOCATIONS ARE APPROXIMATE



**MALCOLM
PIRNIE**

U.S. ARMY CORPS OF ENGINEERS
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE
OU-2 BUILDING DEMOLITION
SOUTH PLAINFIELD, NEW JERSEY
CONTRACT: W912DQ-06-D-0006

PAINT CHIP/WINDOW CAULKING AND CORING SAMPLE LOCATIONS
CLUSTER 12
VERTICAL OIL TANK
SCALE AS NOTED

MALCOLM PIRNIE, INC.
OCTOBER 2006
FIGURE 14

TABLES

Key To Summary Tables of Validated Laboratory Data:

Laboratory Data Flags:

NR - Not analyzed.

U - The compound was not detected at the indicated concentration.

J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.

B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the sample.

P - For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%

* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.

Validator Data Qualifiers:

J - Estimated results

R- Rejected Results

Results which are in bold indicate a result which exceeds the regulatory limit.

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
Cluster 1, Building 1						
CD-ASB-01-01	4/28/2006	9"x9" floor tile (black)	floor adjacent to loading dock at W. end of Bldg.	1.4% Chrysotile (PC) ^a	5,000 square feet	Non-Friable
CD-ASB-01-02	4/28/2006	9"x9" floor tile (black)	floor adjacent to loading dock at W. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-01-03	4/28/2006	9"x9" floor tile (black)	floor adjacent to loading dock at W. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-01-04	4/28/2006	2'x4' acoustical ceiling tile	hallway ceiling at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-01-05	4/28/2006	2'x4' acoustical ceiling tile	hallway ceiling at SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-01-06	4/28/2006	2'x4' acoustical ceiling tile	hallway ceiling at SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-01-07	4/28/2006	gypsum wallboard	office wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-01-08	4/28/2006	gypsum wallboard	office wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-01-09	4/28/2006	gypsum wallboard	office wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-01-10	4/28/2006	1'x1' fiberboard wall tile	closet wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-01-11	4/28/2006	1'x1' fiberboard wall tiles	closet wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-01-12	4/28/2006	1'x1' fiberboard wall tiles	closet wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-01-13	4/28/2006	carpet mastic	office floor at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-01-14	4/28/2006	1'x1' fiberboard wall tile mastic	closet wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-01-15	4/28/2006	pipe insulation	pipe adjacent to wall at SE corner of Bldg.	5.0% Chrysotile (PC) ^a	175 linear feet	Friable
CD-ASB-01-16	4/28/2006	9"x9" floor tile (green)	floor adjacent to loading dock at W. end of Bldg.	1.5% Chrysotile (PC) ^a	(included in quantity above for 9"x9" black)	Non-Friable
CD-ASB-01-17	4/28/2006	9"x9" floor tile (green)	floor adjacent to loading dock at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-01-18	4/28/2006	9"x9" floor tile (green)	floor adjacent to loading dock at W. end of Bldg.	0.25% Chrysotile (PC) ^a	N/A	N/A
CD-ASB-01-19	4/28/2006	9"x9" floor tile (black)	Dup of -02	1.2% Chrysotile (PC) ^a	N/A	N/A
CD-ASB-01-20	4/28/2006	1'x1' fiberboard wall tiles	Dup of -10	None Detected	N/A	N/A
CD-ASB-01-21	5/2/2006	roofing material (top layer)	roof over offices at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-01-22	5/2/2006	roofing material (2nd layer)	roof over offices at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-01-23	5/2/2006	roofing material (3rd layer)	roof over offices at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-01-24	5/2/2006	roofing material (4th layer)	roof over offices at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-01-25	5/2/2006	roofing material (5th layer)	roof over offices at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-01-26	5/2/2006	roofing material (6th layer)	roof over offices at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-01-27	5/2/2006	roofing material (bottom layer)	roof over offices at SW corner of Bldg.	None Detected ^a	N/A	N/A

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-01-28	5/2/2006	roof flashing	roof over offices at SW corner of Bldg.	1.3% Chrysotile (PC) ^a	To Be Determined	Non-Friable
Cluster 1, Building 1A						
CD-ASB-1A-01	5/2/2006	9"x9" floor tile (black)	floor at SW corner of Bldg.	10% Chrysotile ^a	700 square feet	Non-Friable
CD-ASB-1A-02	5/2/2006	9"x9" floor tile (black)	floor at SW corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-1A-03	5/2/2006	9"x9" floor tile (black)	floor at S. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-1A-04	5/2/2006	9"x9" floor tile (green)	floor at SW corner of Bldg.	10% Chrysotile ^a	(included in quantity above for 9"x9" black)	Non-Friable
CD-ASB-1A-05	5/2/2006	9"x9" floor tile (green)	floor at S. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-1A-06	5/2/2006	9"x9" floor tile (green)	floor at SW corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-1A-07	5/2/2006	wall plaster	wall adjacent to staircase at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1A-08	5/2/2006	wall plaster	wall adjacent to staircase at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1A-09	5/2/2006	wall plaster	support column at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1A-10	5/2/2006	wall plaster	support column at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1A-11	5/2/2006	wall plaster	wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1A-12	5/2/2006	wall plaster	wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1A-13	5/2/2006	ceiling plaster	ceiling above staircase at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1A-14	5/2/2006	wall plaster	wall adjacent to staircase at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1A-15	5/2/2006	ceiling plaster	ceiling above staircase at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1A-16	5/2/2006	window caulking (interior)	windows at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1A-17	5/2/2006	window caulking (interior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1A-18	5/2/2006	window caulking (interior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1A-19	5/2/2006	pipe insulation	pipe adjacent to wall at SW corner of Bldg.	10% Chrysotile ^a	250 linear feet	Friable
CD-ASB-1A-20	5/2/2006	pipe insulation	overhead pipe at N. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-1A-21	5/2/2006	pipe insulation	overhead pipe above staircase at N. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-1A-22	5/2/2006	wood panel caulking (exterior)	S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1A-23	5/2/2006	wood panel caulking (exterior)	S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1A-24	5/2/2006	wood panel caulking (exterior)	SE corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1A-25	5/2/2006	shingle siding (exterior)	SW corner of Bldg.	None Detected ^a	N/A	N/A

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-1A-26	5/2/2006	shingle siding (exterior)	SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1A-27	5/2/2006	shingle siding (exterior)	SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1A-28	5/2/2006	9"x9" floor tile (black)	Dup of -01	10% Chrysotile ^a	N/A	N/A
CD-ASB-1A-29	5/2/2006	pipe insulation	Dup of -21	20% Chrysotile ^a	N/A	N/A
Cluster 1, Building 1B						
CD-ASB-1B-01	4/27/2006	window caulking (interior)	windows at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1B-02	4/27/2006	window caulking (interior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1B-03	4/27/2006	window caulking (interior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1B-04	4/27/2006	gypsum wallboard	bathroom wall at NW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-1B-05	4/27/2006	gypsum wallboard	bathroom wall at NW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-1B-06	4/27/2006	gypsum wallboard	bathroom wall at NW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-1B-07	4/27/2006	wall plaster	wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1B-08	4/27/2006	wall plaster	wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1B-09	4/27/2006	wall plaster	wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1B-10	4/27/2006	pipe insulation	overhead pipe at W. end of Bldg.	1.2% Chrysotile (PC) ^a	40 linear feet	Friable
CD-ASB-1B-11	4/27/2006	pipe insulation	overhead pipe at W. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-1B-12	4/27/2006	pipe insulation	overhead pipe at W. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-1B-13	4/27/2006	window/ wood panel caulking (exterior)	SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1B-14	4/27/2006	window/ wood panel caulking (exterior)	S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1B-15	4/27/2006	window/ wood panel caulking (exterior)	S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1B-16	4/27/2006	wall plaster	Dup of -07	None Detected	N/A	N/A
CD-ASB-1B-17	4/27/2006	window/ wood panel caulking (exterior)	Dup of -15	None Detected ^a	N/A	N/A
Cluster 1, Building 1C						
CD-ASB-1C-01	4/24/2006	window caulking (interior)	windows at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1C-02	4/24/2006	window caulking (interior)	windows at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1C-03	4/24/2006	window caulking (interior)	windows at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1C-04	4/24/2006	1'x1' acoustical ceiling tile	bathroom ceiling at NE end of Bldg.	None Detected	N/A	N/A
CD-ASB-1C-05	4/24/2006	1'x1' acoustical ceiling tile	bathroom ceiling at NE end of Bldg.	None Detected	N/A	N/A
CD-ASB-1C-06	4/24/2006	1'x1' acoustical ceiling tile	bathroom ceiling at NE end of Bldg.	None Detected	N/A	N/A
CD-ASB-1C-07	4/24/2006	pipe insulation	overhead pipe at W. end of Bldg.	40% Chrysotile ^a	150 linear feet	Friable
CD-ASB-1C-08	4/24/2006	pipe insulation	overhead pipe at W. end of Bldg.	40% Chrysotile ^a	(included in quantity above)	Friable
CD-ASB-1C-09	4/24/2006	pipe insulation	overhead pipe at W. end of Bldg.	40% Chrysotile ^a	(included in quantity above)	Friable
CD-ASB-1C-10	4/24/2006	ceiling plaster	ceiling at NW corner of Bldg.	None Detected	N/A	N/A

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-1C-11	4/24/2006	ceiling plaster	ceiling at NW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-1C-12	4/24/2006	ceiling plaster	ceiling at NW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-1C-13	4/24/2006	wood panel caulking (exterior)	W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1C-14	4/24/2006	wood panel caulking (exterior)	W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1C-15	4/24/2006	wood panel caulking (exterior)	NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1C-16	4/24/2006	window caulking (interior)	Dup of -01	None Detected ^a	N/A	N/A
CD-ASB-1C-17	4/24/2006	1'x1' acoustical ceiling tile	Dup of -05	None Detected	N/A	N/A
CDR-ASB-1C-01	6/7/2006	roofing material (top layer)	SE corner of Bldg.	None Detected ^a	N/A	80% Non-Fibrous
CDR-ASB-1C-02	6/7/2006	roofing material (middle layer)	SE corner of Bldg.	None Detected ^a	N/A	80% Non-Fibrous
CDR-ASB-1C-03	6/7/2006	roofing material (bottom layer)	SE corner of Bldg.	PC 2.3 Chrysotile ^a	N/A	Non-Fibrous Material PC 77.7
CDR-ASB-1C-04	6/7/2006	roof flashing	SE corner of Bldg.	10% Chrysotile ^a	N/A	85% Non-Fibrous
Cluster 1, Building 1D						
CD-ASB-1D-01	5/2/2006	gypsum wallboard	office wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1D-02	5/2/2006	gypsum wallboard	office wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1D-03	5/2/2006	gypsum wallboard	office wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1D-04	5/2/2006	fiberboard (wall)	office wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1D-05	5/2/2006	fiberboard (wall)	office wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1D-06	5/2/2006	fiberboard (wall)	office wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1D-07	5/2/2006	pipe insulation	pipe adjacent to bathroom at N. end of Bldg.	10% Chrysotile ^a	12 linear feet	Friable
CD-ASB-1D-08	5/2/2006	pipe insulation	pipe adjacent to bathroom at N. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-1D-09	5/2/2006	pipe insulation	pipe adjacent to bathroom at N. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-1D-10	5/2/2006	12"x12" floor tile (wood pattern)	bathroom floor at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1D-11	5/2/2006	12"x12" floor tile (wood pattern)	bathroom floor at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1D-12	5/2/2006	12"x12" floor tile (wood pattern)	bathroom floor at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1D-13	5/2/2006	9"x9" floor tile (black)	office floor at W. end of Bldg.	None Detected ^a	5,500 square feet	Non-Friable
CD-ASB-1D-14	5/2/2006	9"x9" floor tile (black)	floor at E. end of Bldg.	None Detected ^a	---	---
CD-ASB-1D-15	5/2/2006	9"x9" floor tile (black)	floor at E. end of Bldg.	None Detected ^a	---	---
CD-ASB-1D-16	5/2/2006	9"x9" floor tile (green)	office floor at W. end of Bldg.	None Detected ^a	(included in quantity above for 9"x9" black)	Non-Friable
CD-ASB-1D-17	5/2/2006	9"x9" floor tile (green)	floor at E. end of Bldg.	None Detected ^a	---	---

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-1D-18	5/2/2006	9"x9" floor tile (green)	floor at E. end of Bldg.	None Detected ^a	---	---
CD-ASB-1D-19	5/2/2006	1'x1.5' floor tile (black)	office floor at W. end of Bldg.	None Detected ^a	700 square feet	Non-Friable
CD-ASB-1D-20	5/2/2006	1'x1.5' floor tile (black)	floor at E. end of Bldg.	None Detected ^a	---	---
CD-ASB-1D-21	5/2/2006	1'x1.5' floor tile (black)	floor at E. end of Bldg.	None Detected ^a	---	---
CD-ASB-1D-22	5/2/2006	vinyl flooring	office floor at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1D-23	5/2/2006	vinyl flooring	office floor at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1D-24	5/2/2006	vinyl flooring	office floor at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1D-25	5/2/2006	tar paper (under vinyl flooring)	office floor at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1D-26	5/2/2006	tar paper (under vinyl flooring)	office floor at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1D-27	5/2/2006	tar paper (under vinyl flooring)	office floor at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1D-28	5/2/2006	floor mastic (under tar paper)	office floor at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1D-29	5/2/2006	window caulking (interior)	windows at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1D-30	5/2/2006	window caulking (interior)	windows at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1D-31	5/2/2006	window caulking (interior)	windows at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-1D-32	5/2/2006	1'x1' acoustical ceiling tile	office ceiling at SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-1D-33	5/2/2006	1'x1' acoustical ceiling tile	office ceiling at SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-1D-34	5/2/2006	1'x1' acoustical ceiling tile	office ceiling at SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-1D-35	5/2/2006	wall plaster (gray bottom coat)	storage room wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1D-36	5/2/2006	wall plaster (gray bottom coat)	storage room wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1D-37	5/2/2006	wall plaster (gray bottom coat)	storage room wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1D-38	5/2/2006	wall plaster (gray top two coats)	storage room wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1D-39	5/2/2006	wall plaster (gray top two coats)	storage room wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1D-40	5/2/2006	wall plaster (gray top two coats)	storage room wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-1D-41	5/2/2006	window caulking (interior)	storage Room at E. end of Bldg.	None Detected ^a	500 linear feet	Non-Friable
CD-ASB-1D-42	5/2/2006	window caulking (interior)	storage Room at E. end of Bldg.	None Detected ^a	---	---
CD-ASB-1D-43	5/2/2006	window caulking (interior)	storage Room at E. end of Bldg.	None Detected ^a	---	---
CD-ASB-1D-44	5/2/2006	vinyl flooring	Dup of -22	None Detected ^a	N/A	N/A
CD-ASB-1D-45	5/2/2006	tar paper (under vinyl flooring)	Dup of -26	None Detected ^a	N/A	N/A
Cluster 1, Building 6						
CD-ASB-06-01	4/24/2006	fiberboard (wall)	bathroom wall at S. end of Bldg.	None Detected	N/A	N/A
CD-ASB-06-02	4/24/2006	fiberboard (wall)	bathroom wall at S. end of Bldg.	None Detected	N/A	N/A
CD-ASB-06-03	4/24/2006	fiberboard (wall)	bathroom wall at S. end of Bldg.	None Detected	N/A	N/A

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-06-04	4/24/2006	window caulking (interior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-06-05	4/24/2006	window caulking (interior)	windows at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-06-06	4/24/2006	window caulking (interior)	windows at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-06-07	4/24/2006	gypsum wallboard	office wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-06-08	4/24/2006	gypsum wallboard	office wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-06-09	4/24/2006	gypsum wallboard	office wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-06-10	4/24/2006	joint compound (on gypsum wallboard)	office wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-06-11	4/24/2006	pipe fitting	pipe adjacent to wall in staircase of SE corner of Bldg.	60% Chrysotile ^a	1 fitting	Friable
CD-ASB-06-12	4/24/2006	pipe insulation	pipe at S. end of Bldg. (upstairs)	40% Chrysotile ^a	125 linear feet	Friable
CD-ASB-06-13	4/24/2006	pipe insulation	pipe at S. end of Bldg. (upstairs)	35% Chrysotile ^a	(included in quantity above)	Friable
CD-ASB-06-14	4/24/2006	pipe insulation	pipe at S. end of Bldg. (upstairs)	40% Chrysotile ^a	(included in quantity above)	Friable
CD-ASB-06-15	4/24/2006	fiberboard (floor)	upstairs floor above offices at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-06-16	4/24/2006	fiberboard (floor)	upstairs floor above offices at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-06-17	4/24/2006	fiberboard (floor)	upstairs floor above offices at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-06-18	4/24/2006	carpet mastic	office floor at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-06-19	4/24/2006	fiberboard (wall)	Dup of -03	None Detected	N/A	N/A
CD-ASB-06-20	4/24/2006	window caulking (interior)	Dup of -04	None Detected ^a	N/A	N/A
CD-ASB-06-21	4/24/2006	door caulking (exterior)	door at S. end of Bldg	None Detected ^a	N/A	N/A
CD-ASB-06-22	4/24/2006	door caulking (exterior)	door at S. end of Bldg	None Detected ^a	N/A	N/A
CD-ASB-06-23	4/24/2006	door caulking (exterior)	door at S. end of Bldg	None Detected ^a	N/A	N/A
CD-ASB-06-24	4/24/2006	transite siding (exterior)	wall at SE corner of Bldg.	20% Chrysotile ^a	40 square feet	Non-Friable
CD-ASB-06-25	4/24/2006	transite siding (exterior)	wall at SE corner of Bldg.	20% Chrysotile ^a	(included in quantity above)	Non-Friable
CD-ASB-06-26	4/24/2006	transite siding (exterior)	wall at SE corner of Bldg.	20% Chrysotile ^a	(included in quantity above)	Non-Friable
CD-ASB-06-27	4/24/2006	tar paper (under transite siding)	wall at SE corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-06-28	4/24/2006	2'x2' acoustical ceiling tile	office ceiling at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-06-29	4/24/2006	2'x2' acoustical ceiling tile	office ceiling at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-06-30	4/24/2006	2'x2' acoustical ceiling tile	office ceiling at E. end of Bldg.	None Detected	N/A	N/A
Cluster 2, Building 2						
CD-ASB-02-01	4/28/2006	pipe insulation	pipe adjacent to wall at SW corner of Bldg.	3.8% Chrysotile (PC) & 35% Amosite ^a	1,000 linear feet	Friable

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-02-02	4/26/2006	pipe insulation	pipe adjacent to wall at SW corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-02-03	4/26/2006	pipe insulation	pipe adjacent to wall at SW corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-02-04	4/26/2006	9"x9" floor tile (black)	floor S. of offices at SW corner of Bldg.	2.7% Chrysotile (PC) ^a	3,000 square feet	Non-Friable
CD-ASB-02-05	4/26/2006	9"x9" floor tile (black)	floor S. of offices at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-02-06	4/26/2006	9"x9" floor tile (black)	floor S. of offices at SW corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-02-07	4/26/2006	9"x9" floor tile (green)	floor S. of offices at SW corner of Bldg.	4.1% Chrysotile (PC) ^a	(included in quantity above for 9"x9" black)	Non-Friable
CD-ASB-02-08	4/26/2006	9"x9" floor tile (green)	floor S. of offices at SW corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-02-09	4/26/2006	9"x9" floor tile (green)	floor S. of offices at SW corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-02-10	4/26/2006	gypsum wallboard	bathroom wall at S. end of Bldg.	None Detected	N/A	N/A
CD-ASB-02-11	4/26/2006	gypsum wallboard	bathroom wall at S. end of Bldg.	None Detected	N/A	N/A
CD-ASB-02-12	4/26/2006	gypsum wallboard	bathroom wall at S. end of Bldg.	None Detected	N/A	N/A
CD-ASB-02-13	4/26/2006	window caulking (interior)	windows at SE corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-02-14	4/26/2006	window caulking (interior)	windows at SE corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-02-15	4/26/2006	window caulking (interior)	windows at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-02-16	4/26/2006	2'x4' acoustical ceiling tile	office ceiling at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-02-17	4/26/2006	2'x4' acoustical ceiling tile	office ceiling at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-02-18	4/26/2006	2'x4' acoustical ceiling tile	office ceiling at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-02-19	4/26/2006	vinyl flooring (tan)	office floor at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-02-20	4/26/2006	vinyl flooring (tan)	office floor at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-02-21	4/26/2006	vinyl flooring (tan)	office floor at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-02-22	4/26/2006	vinyl flooring (white/black)	office floor at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-02-23	4/26/2006	vinyl flooring (white/black)	office floor at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-02-24	4/26/2006	vinyl flooring (white/black)	office floor at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-02-25	4/26/2006	fiberboard (wall)	office wall at SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-02-26	4/26/2006	fiberboard (wall)	office wall at SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-02-27	4/26/2006	fiberboard (wall)	office wall at SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-02-28	4/26/2006	window/door caulking (exterior)	windows/doors at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-02-29	4/26/2006	window/door caulking (exterior)	windows/doors at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-02-30	4/26/2006	window/door caulking (exterior)	windows/doors at W. end of Bldg.	None Detected ^a	N/A	N/A

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-02-31	4/26/2006	9"x9" floor tile (green)	Dup of -07	^a	N/A	N/A
Cluster 2, Building 2A						
CD-ASB-2A-01	4/27/2006	12"x12" floor tile (tan)	office floor at S. end of Bldg.	4.2% Chrysotile (PC) ^a	500 square feet	Non-Friable
CD-ASB-2A-02	4/27/2006	12"x12" floor tile (tan)	office floor at S. end of Bldg.	2.5% Chrysotile (PC) ^a	(included in quantity above)	Non-Friable
CD-ASB-2A-03	4/27/2006	12"x12" floor tile (tan)	office floor at S. end of Bldg.	2.1% Chrysotile (PC) ^a	(included in quantity above)	Non-Friable
CD-ASB-2A-04	4/27/2006	baseboard mastic	office wall at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-2A-05	4/27/2006	baseboard mastic	office wall at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-2A-06	4/27/2006	baseboard mastic	office wall at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-2A-07	4/27/2006	window caulking (interior)	windows at NE corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-2A-08	4/27/2006	window caulking (interior)	windows at NE corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-2A-09	4/27/2006	window caulking (interior)	windows at NE corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-2A-10	4/27/2006	12"x12" floor tile (tan)	Dup of -01	4.8% Chrysotile (PC) ^a	N/A	N/A
CD-ASB-2A-11	4/27/2006	window/ wood panel caulking (exterior)	N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-2A-12	4/27/2006	window/ wood panel caulking (exterior)	E. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-2A-13	4/27/2006	window/ wood panel caulking (exterior)	E. end of Bldg.	None Detected ^a	N/A	N/A
CDR-ASB-2A-01	6/8/2006	roofing material (top layer)	S. end of Bldg.	PC 2.3 Chrysotile ^a	N/A	% Non-Fibrous PC 97.7
CDR-ASB-2A-02	6/8/2006	roofing material (2nd layer)	S. end of Bldg.	None Detected ^a	N/A	% Non-Fibrous 85%
CDR-ASB-2A-03	6/8/2006	roofing material (3rd layer)	S. end of Bldg.	None Detected ^a	N/A	% Non-Fibrous 95%
CDR-ASB-2A-04	6/8/2006	roofing material (4th layer)	S. end of Bldg.	None Detected ^a	N/A	% Non-Fibrous 80%
CDR-ASB-2A-05	6/8/2006	roofing material (5th layer)	S. end of Bldg.	PC Trace Chrysotile ^a	N/A	% Non-Fibrous 80%
CDR-ASB-2A-06	6/8/2006	roofing material (6th layer)	S. end of Bldg.	None Detected ^a	N/A	% Non-Fibrous 80%
CDR-ASB-2A-07	6/8/2006	roofing material (bottom layer)	S. end of Bldg.	15% Chrysotile ^a	N/A	% Non-Fibrous 75%
CDR-ASB-2A-08	6/8/2006	roof flashing	S. end of Bldg.	PC 2.3 Chrysotile ^a	N/A	% Non-Fibrous 70%
Cluster 2, Building 3/4						
CD-ASB-34-01	4/25/2006	window caulking (interior)	windows at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-34-02	4/25/2006	window caulking (interior)	windows at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-34-03	4/25/2006	window caulking (interior)	windows at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-34-04	4/25/2006	tar patch (on window)	windows at W. end of Bldg.	1.8% Chrysotile (PC) ^a	100 square feet	Non-Friable
CD-ASB-34-05	4/25/2006	tar patch (on window)	windows at SW corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-34-06	4/25/2006	tar patch (on window)	windows at SW corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-34-07	4/25/2006	fiberboard (wall)	office wall at N. end of Bldg.	None Detected	N/A	N/A

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-34-08	4/25/2006	fiberboard (wall)	office wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-34-09	4/25/2006	fiberboard (wall)	office wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-34-10	4/25/2006	2'x4' acoustical ceiling tile	bathroom ceiling at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-34-11	4/25/2006	2'x4' acoustical ceiling tile	bathroom ceiling at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-34-12	4/25/2006	2'x4' acoustical ceiling tile	bathroom ceiling at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-34-13	4/25/2006	gypsum wallboard	office wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-34-14	4/25/2006	gypsum wallboard	office wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-34-15	4/25/2006	gypsum wallboard	office wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-34-16	4/25/2006	window caulking (interior)	Dup of -01	None Detected ^a	N/A	N/A
CD-ASB-34-17	4/25/2006	12"x12" floor tile (white)	bathroom floor at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-34-18	4/25/2006	12"x12" floor tile (white)	bathroom floor at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-34-19	4/25/2006	12"x12" floor tile (white)	bathroom floor at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-34-20	4/25/2006	12"x12" floor tile (white) mastic	bathroom floor at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-34-21	4/25/2006	door/ wood panel caulking (exterior)	NW corner of Bldg.	3.0% Chrysotile (PC) ^a	2,500 linear feet	Non-Friable
CD-ASB-34-22	4/25/2006	door/ wood panel caulking (exterior)	SW corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-34-23	4/25/2006	door/ wood panel caulking (exterior)	S. end of Bldg.	Not Analyzed ^a	---	---
CDR-ASB-34-01	6/7/2006	roofing material (top layer)	S. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 85%
CDR-ASB-34-02	6/7/2006	roofing material (2nd layer)	S. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 95%
CDR-ASB-34-03	6/7/2006	roofing material (3rd layer)	S. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 80%
CDR-ASB-34-04	6/7/2006	roofing material (bottom layer)	S. end of Bldg.	15% Chrysotile ^a	N/A	Non-Fibrous 75%
CDR-ASB-34-05	6/7/2006	roof flashing	S. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 80%
Cluster 2, Building 4A						
CD-ASB-4A-01	5/1/2006	gypsum wallboard	office wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-4A-02	5/1/2006	gypsum wallboard	office wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-4A-03	5/1/2006	gypsum wallboard	office wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-4A-04	5/1/2006	12"x12" floor tile (red)	office floor at E. end of Bldg.	0.5% Chrysotile (PC) ^a	N/A	N/A
CD-ASB-4A-05	5/1/2006	12"x12" floor tile (red)	office floor at E. end of Bldg.	0.3% Chrysotile (PC) ^a	N/A	N/A
CD-ASB-4A-06	5/1/2006	12"x12" floor tile (red)	office floor at E. end of Bldg.	0.5% Chrysotile (PC) ^a	N/A	N/A
CD-ASB-4A-07	5/1/2006	12"x12" floor tile (red) mastic	office floor at E. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-4A-08	5/1/2006	pipe insulation	overhead pipe at N. end of Bldg.	20% Chrysotile ^a	900 linear feet	Friable
CD-ASB-4A-09	5/1/2006	pipe insulation	overhead pipe at N. end of Bldg.	Not Analyzed ^a	---	---

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-4A-10	5/1/2006	pipe insulation	overhead pipe at N. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-4A-11	5/1/2006	door caulking (exterior)	exterior door on E. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-4A-12	5/1/2006	door caulking (exterior)	exterior door on E. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-4A-13	5/1/2006	door caulking (exterior)	exterior door on E. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-4A-14	5/1/2006	paper insulation (under exterior metal siding)	SE corner of Bldg.	None Detected	N/A	N/A
CD-ASB-4A-15	5/1/2006	paper insulation (under exterior metal siding)	NE corner of Bldg.	None Detected	N/A	N/A
CD-ASB-4A-16	5/1/2006	paper insulation (under exterior metal siding)	NE corner of Bldg.	None Detected	N/A	N/A
CD-ASB-4A-17	5/1/2006	shingle siding (under paper insulation)	S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-4A-18	5/1/2006	shingle siding (under paper insulation)	S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-4A-19	5/1/2006	shingle siding (under paper insulation)	S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-4A-20	5/1/2006	12"x12" floor tile (red)	Dup of -04	0.5% Chrysotile (PC) ^a	N/A	N/A
CD-ASB-4A-21	5/1/2006	door caulking (exterior)	Dup of -11	None Detected ^a	N/A	N/A
CDR-ASB-4A-01	6/7/2006	roofing material (top layer)	SE corner of Bldg.	None Detected ^a	N/A	Non-Fibrous 85%
CDR-ASB-4A-02	6/7/2006	roofing material (2nd layer)	SE corner of Bldg.	None Detected ^a	N/A	Non-Fibrous 100%
CDR-ASB-4A-03	6/7/2006	roofing material (3rd layer)	SE corner of Bldg.	None Detected ^a	N/A	Non-Fibrous 60%
CDR-ASB-4A-04	6/7/2006	roofing material (4th layer)	SE corner of Bldg.	10% Chrysotile ^a	N/A	Non-Fibrous 65%
CDR-ASB-4A-05	6/7/2006	roofing material (bottom layer)	SE corner of Bldg.	15% Chrysotile ^a	N/A	Non-Fibrous 75%
CDR-ASB-4A-06	6/7/2006	roof flashing	SE corner of Bldg.	15% Chrysotile ^a	N/A	Non-Fibrous 85%
Cluster 3, Building 5						
CD-ASB-05-01	5/2/2006	gypsum wallboard	wall at S. end of Bldg.	None Detected	N/A	N/A
CD-ASB-05-02	5/2/2006	gypsum wallboard	closet wall at NW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-05-03	5/2/2006	gypsum wallboard	bathroom wall at NW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-05-04	5/2/2006	window caulking (interior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-05-05	5/2/2006	window caulking (interior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-05-06	5/2/2006	window caulking (interior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-05-07	5/2/2006	pipe insulation	overhead pipe at N. end of Bldg.	None Detected ^a	N/A	N/A
CDR-ASB-05-01	6/8/2006	roofing material (top layer)	S. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 100%
CDR-ASB-05-02	6/8/2006	roofing material (2nd layer)	S. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 80%

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CDR-ASB-05-03	6/8/2006	roofing material (3rd layer)	S. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 80%
CDR-ASB-05-04	6/8/2006	roofing material (bottom layer)	S. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 80%
CDR-ASB-05-05	6/8/2006	roof flashing	S. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 100%
Cluster 3, Building 5A						
CD-ASB-5A-01	5/1/2006	9"x9" floor tile (gray)	floor E. of offices at E. end of Bldg.	4.2% Chrysotile (PC) ^a	800 square feet	Non-Friable
CD-ASB-5A-02	5/1/2006	9"x9" floor tile (gray)	floor E. of offices at E. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-5A-03	5/1/2006	9"x9" floor tile (gray)	floor E. of offices at E. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-5A-04	5/1/2006	12"x12" floor tile (tan)	bathroom floor at NE end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-5A-05	5/1/2006	12"x12" floor tile (tan)	bathroom floor at NE end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-5A-06	5/1/2006	12"x12" floor tile (tan)	bathroom floor at NE end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-5A-07	5/1/2006	gypsum wallboard	bathroom wall at NE end of Bldg.	None Detected	N/A	N/A
CD-ASB-5A-08	5/1/2006	gypsum wallboard	bathroom wall at NE end of Bldg.	None Detected	N/A	N/A
CD-ASB-5A-09	5/1/2006	gypsum wallboard	bathroom wall at NE end of Bldg.	None Detected	N/A	N/A
CD-ASB-5A-10	5/1/2006	2'x4' acoustical ceiling tile	bathroom ceiling at NE end of Bldg.	None Detected	N/A	N/A
CD-ASB-5A-11	5/1/2006	2'x4' acoustical ceiling tile	bathroom ceiling at NE end of Bldg.	None Detected	N/A	N/A
CD-ASB-5A-12	5/1/2006	2'x4' acoustical ceiling tile	bathroom ceiling at NE end of Bldg.	None Detected	N/A	N/A
CD-ASB-5A-13	5/1/2006	window caulking (interior)	windows at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-5A-14	5/1/2006	window caulking (interior)	windows at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-5A-15	5/1/2006	window caulking (interior)	windows at N. end of Bldg.	None Detected ^a	N/A	N/A
Cluster 4, Building 8						
CD-ASB-08-01	4/26/2006	window caulking (interior)	windows at NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-08-02	4/26/2006	window caulking (interior)	windows at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-08-03	4/26/2006	window caulking (interior)	windows at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-08-04	4/26/2006	12"x12" floor tile (tan under carpet)	office floor at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-08-05	4/26/2006	12"x12" floor tile (tan under carpet)	office floor at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-08-06	4/26/2006	12"x12" floor tile (tan under carpet)	office floor at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-08-07	4/26/2006	12"x12" floor tile (gray)	office floor at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-08-08	4/26/2006	12"x12" floor tile (gray)	office floor at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-08-09	4/26/2006	12"x12" floor tile (gray)	office floor at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-08-10	4/26/2006	gypsum wallboard	office wall at SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-08-11	4/26/2006	gypsum wallboard	office wall at SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-08-12	4/26/2006	gypsum wallboard	office wall at SW corner of Bldg.	None Detected	N/A	N/A

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-08-13	4/26/2006	transite panel (ceiling)	bathroom ceiling at SE corner of Bldg.	25% Chrysotile ^a	4,500 square feet	Non-Friable
CD-ASB-08-14	4/26/2006	transite panel (ceiling)	bathroom ceiling at SE corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-08-15	4/26/2006	transite panel (ceiling)	bathroom ceiling at SE corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-08-16	4/26/2006	pipe insulation	overhead pipe at S. end of Bldg.	20% Chrysotile & 10% Amosite ^a	600 linear feet	Friable
CD-ASB-08-17	4/26/2006	pipe insulation	overhead pipe at S. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-08-18	4/26/2006	pipe insulation	overhead pipe at S. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-08-19	4/26/2006	12"x12" floor tile (tan - under carpet)	Dup of -04	None Detected ^a	N/A	N/A
CD-ASB-08-20	4/26/2006	window caulking (exterior)	windows at N. end of Bldg.	None Detected ^a	N/A	N/A
CDR-ASB-08-01	6/8/2006	roofing materials (top layer)	N. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 85%
CDR-ASB-08-02	6/8/2006	roofing material (2nd layer)	N. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 85%
CDR-ASB-08-03	6/8/2006	roofing material (3rd layer)	N. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 85%
CDR-ASB-08-04	6/8/2006	roofing materials (4th layer)	N. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 85%
CDR-ASB-08-05	6/8/2006	roofing materials (bottom layer)	N. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 10%
CDR-ASB-08-06	6/8/2006	roof flashing	N. end of Bldg.	10% Chrysotile ^a	N/A	Non-Fibrous 90%
Cluster 5, Building 9						
CD-ASB-09-01	4/21/2006	12"x12" floor tile (tan)	bathroom floor at NW corner of Bldg.	1.6% Chrysotile (PC) ^a	60 square feet	Non-Friable
CD-ASB-09-02	4/21/2006	12"x12" floor tile (tan)	bathroom floor at NW corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-09-03	4/21/2006	12"x12" floor tile (tan)	bathroom floor at NW corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-09-04	4/21/2006	12"x12" floor tile (tan) mastic	bathroom floor at NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-09-05	4/21/2006	12"x12" floor tile (tan) mastic	bathroom floor at NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-09-06	4/21/2006	12"x12" floor tile (tan) mastic	bathroom floor at NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-09-07	4/21/2006	12"x12" floor tile (green - under carpet)	office floor at NW corner of Bldg.	10% Chrysotile ^a	600 square feet	Non-Friable
CD-ASB-09-08	4/21/2006	12"x12" floor tile (green - under carpet)	office floor at NW corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-09-09	4/21/2006	12"x12" floor tile (green - under carpet)	office floor at NW corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-09-10	4/21/2006	12"x12" floor tile (green - under carpet) mastic	office floor at NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-09-11	4/21/2006	12"x12" floor tile (green - under carpet) mastic	office floor at NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-09-12	4/21/2006	12"x12" floor tile (green - under carpet) mastic	office floor at NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-09-13	4/21/2006	fiberboard (under carpet)	office floor at NW corner of Bldg.	None Detected ^a	N/A	N/A

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-09-14	4/21/2006	fiberboard (under carpet)	office floor at NW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-09-15	4/21/2006	fiberboard (under carpet)	office floor at NW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-09-16	4/21/2006	gypsum wallboard	wall at SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-09-17	4/21/2006	gypsum wallboard	office wall at NW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-09-18	4/21/2006	gypsum wallboard	bathroom wall at NE corner of Bldg.	None Detected	N/A	N/A
CD-ASB-09-19	4/21/2006	window caulking (interior)	windows at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-09-20	4/21/2006	window caulking (interior)	windows at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-09-21	4/21/2006	window caulking (interior)	windows at NE corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-09-22	4/21/2006	door caulking (exterior)	exterior door on W. end of Bldg.	1.8% Chrysotile ^a	15 linear feet	Non-Friable
CD-ASB-09-23	4/21/2006	door caulking (exterior)	exterior door on W. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-09-24	4/21/2006	door caulking (exterior)	exterior door on W. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-09-25	4/21/2006	window caulking (exterior)	windows at NW corner of Bldg.	Trace Chrysotile (PC) ^a	N/A	N/A
CD-ASB-09-26	4/21/2006	pipe fitting	overhead pipe fitting adjacent to wall at SE corner of Bldg.	2.4% Chrysotile (PC) ^a	1 fitting	Friable
CD-ASB-09-27	4/21/2006	pipe insulation	overhead pipe adjacent to wall at SE corner of Bldg.	65% Chrysotile ^a	600 linear feet	Friable
CD-ASB-09-28	4/21/2006	pipe insulation	overhead pipe at east end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-09-29	4/21/2006	pipe insulation	overhead pipe at east end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-09-30	4/21/2006	12"x12" floor tile (green -under carpet)	Dup of -08	10% Chrysotile ^a	---	---
CD-ASB-09-31	4/21/2006	gypsum wallboard	Dup of -16	None Detected	N/A	N/A
Cluster 5, Building 9A						
CD-ASB-9A-01	4/20/2006	12"x12" floor tile (tan)	bathroom floor in SE corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9A-02	4/20/2006	12"x12" floor tile (tan)	bathroom floor in SE corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9A-03	4/20/2006	12"x12" floor tile (tan)	bathroom floor in SE corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9A-04	4/20/2006	12"x12" floor tile (gray)	bathroom floor adjacent to offices at E. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9A-05	4/20/2006	12"x12" floor tile (gray)	bathroom floor adjacent to offices at E. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9A-06	4/20/2006	12"x12" floor tile (gray)	bathroom floor adjacent to offices at E. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9A-07	4/20/2006	gypsum wallboard	office wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-9A-08	4/20/2006	gypsum wallboard	office wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-9A-09	4/20/2006	gypsum wallboard	office wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-9A-10	4/20/2006	12"x12" floor tile (white)	office floor at E. end of Bldg.	None Detected ^a	N/A	N/A

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-9A-11	4/20/2006	12"x12" floor tile (white)	office floor at E. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9A-12	4/20/2006	12"x12" floor tile (white)	office floor at E. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9A-13	4/20/2006	carpet mastic	office floor at E. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9A-14	4/20/2006	floor leveling compound (under carpet)	office floor at E. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9A-15	4/20/2006	window caulking (interior)	windows at S. end of Bldg.	1.4% Chrysotile (PC) ^a	100 linear feet	Non-Friable
CD-ASB-9A-16	4/20/2006	window caulking (interior)	windows at W. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-9A-17	4/20/2006	window caulking (interior)	windows at SW corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-9A-18	4/20/2006	pipe insulation	overhead pipe at S. end of Bldg.	30% Chrysotile ^a	150 linear feet	Friable
CD-ASB-9A-19	4/20/2006	pipe insulation	overhead pipe at S. end of Bldg.	40% Chrysotile ^a	(included in quantity above)	Friable
CD-ASB-9A-20	4/20/2006	pipe insulation	overhead pipe at S. end of Bldg.	40% Chrysotile ^a	(included in quantity above)	Friable
CD-ASB-9A-21	4/20/2006	12"x12" floor tile (white)	Dup of -11	None Detected ^a	N/A	N/A
CD-ASB-9A-22	4/20/2006	window caulking (interior)	Dup of -17	None Detected ^a	N/A	N/A
CD-ASB-9A-23	4/20/2006	window caulking (exterior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9A-24	4/20/2006	window caulking (exterior)	windows at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9A-25	4/20/2006	window caulking (exterior)	windows at W. end of Bldg.	None Detected ^a	N/A	N/A
CDR-ASB-9A-01	6/8/2006	roofing material (top layer)	S. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 75%
CDR-ASB-9A-02	6/8/2006	roofing material (2nd layer)	S. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 85%
CDR-ASB-9A-03	6/8/2006	roofing material (3rd layer)	S. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 75%
CDR-ASB-9A-04	6/8/2006	roofing material (4th layer)	S. end of Bldg.	PC Trace Chrysotile ^a	N/A	Non-Fibrous 80%
CDR-ASB-9A-05	6/8/2006	roofing material (bottom layer)	S. end of Bldg.	10 % Trace Chrysotile ^a	N/A	Non-Fibrous 80%
CDR-ASB-9A-06	6/8/2006	roof flashing	S. end of Bldg.	PC Trace Chrysotile ^a	N/A	Non-Fibrous 70%
Cluster 5, Building 9B						
CD-ASB-9B-01	4/25/2006	gypsum wallboard	closet wall at NE corner of Bldg.	None Detected	N/A	N/A
CD-ASB-9B-02	4/25/2006	gypsum wallboard	office wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-9B-03	4/25/2006	gypsum wallboard	closet wall at NE corner of Bldg.	None Detected	N/A	N/A
CD-ASB-9B-04	4/25/2006	1'x1' acoustical ceiling tile	hallway ceiling at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-9B-05	4/25/2006	1'x1' acoustical ceiling tile	hallway ceiling at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-9B-06	4/25/2006	1'x1' acoustical ceiling tile	hallway ceiling at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-9B-07	4/25/2006	pipe insulation	pipe adjacent to wall in bathroom at SW corner of Bldg.	10% Amosite & 20% Chrysotile ^a	500 linear feet	Friable
CD-ASB-9B-08	4/25/2006	pipe insulation	overhead pipe at S. end of Bldg.	Not Analyzed ^a	---	---

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-9B-09	4/25/2006	pipe insulation	overhead pipe at S. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-9B-10	4/25/2006	window caulking (interior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9B-11	4/25/2006	window caulking (interior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9B-12	4/25/2006	window caulking (interior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9B-13	4/25/2006	carpet mastic	hallway floor at E. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9B-14	4/25/2006	2'x4' acoustical ceiling tile	office ceiling at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-9B-15	4/25/2006	2'x4' acoustical ceiling tile	office ceiling at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-9B-16	4/25/2006	2'x4' acoustical ceiling tile	office ceiling at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-9B-17	4/25/2006	tar paper (exterior)	wall connecting Bldg. to Bldg. 17 at E. end of Bldg.	Trace Chrysotile (PC) ^a	N/A	N/A
CD-ASB-9B-18	4/25/2006	tar paper (exterior)	wall connecting Bldg. to Bldg. 17 at E. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9B-19	4/25/2006	tar paper (exterior)	wall connecting Bldg. to Bldg. 17 at E. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9B-20	4/25/2006	window caulking (exterior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9B-21	4/25/2006	window caulking (exterior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9B-22	4/25/2006	window caulking (exterior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9B-23	4/25/2006	door caulking (exterior)	door at S. end of Bldg.	10% Chrysotile ^a	15 linear feet	Non-Friable
CD-ASB-9B-24	4/25/2006	door caulking (exterior)	door at S. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-9B-25	4/25/2006	door caulking (exterior)	door at S. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-9B-26	4/25/2006	1'x1' acoustical ceiling tile	Dup of -06	None Detected	N/A	N/A
CDR-ASB-9B-01	6/8/2006	roofing material (top layer)	E. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 60%
CDR-ASB-9B-02	6/8/2006	roofing material (2nd layer)	E. end of Bldg.	PC Trace Chrysotile ^a	N/A	Non-Fibrous 90%
CDR-ASB-9B-03	6/8/2006	roofing material (3rd layer)	E. end of Bldg.	PC Trace Chrysotile ^a	N/A	Non-Fibrous 85%
CDR-ASB-9B-04	6/8/2006	roofing material (4th layer)	E. end of Bldg.	15% Chrysotile ^a	N/A	Non-Fibrous 80%
CDR-ASB-9B-05	6/8/2006	roofing material (5th layer)	E. end of Bldg.	15% Chrysotile ^a	N/A	Non-Fibrous 80%
CDR-ASB-9B-06	6/8/2006	roofing material (6th layer)	E. end of Bldg.	20% Chrysotile ^a	N/A	Non-Fibrous 75%
CDR-ASB-9B-07	6/8/2006	roofing material (7th layer)	E. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 70%
CDR-ASB-9B-08	6/8/2006	roofing material (bottom layer)	E. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 70%
Cluster 5, Building 9C						
CD-ASB-9C-01	4/28/2006	gypsum wallboard	office wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-9C-02	4/28/2006	gypsum wallboard	office wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-9C-03	4/28/2006	gypsum wallboard	office wall at E. end of Bldg.	None Detected	N/A	N/A

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-9C-04	4/28/2006	fiberboard (wall)	wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-9C-05	4/28/2006	fiberboard (wall)	wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-9C-06	4/28/2006	fiberboard (wall)	wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-9C-07	4/28/2006	window caulking (interior)	windows adjacent to loading dock on S. wall of Bldg.	Trace Chrysotile (PC) ^a	N/A	N/A
CD-ASB-9C-08	4/28/2006	window caulking (interior)	windows adjacent to loading dock on S. wall of Bldg.	0.5% Chrysotile (PC) ^a	N/A	N/A
CD-ASB-9C-09	4/28/2006	window caulking (interior)	windows adjacent to loading dock on S. wall of Bldg.	0.25% Chrysotile (PC) ^a	N/A	N/A
CD-ASB-9C-10	4/28/2006	transite siding (exterior)	E. end of Bldg.	30% Chrysotile ^a	250 square feet	Non-Friable
CD-ASB-9C-11	4/28/2006	transite siding (exterior)	E. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-9C-12	4/28/2006	transite siding (exterior)	E. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-9C-13	4/28/2006	tar paper (under transite siding)	E. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-9C-14	4/28/2006	transite siding caulking	E. end of Bldg.	1.2% Chrysotile (PC) ^a	100 linear feet	Non-Friable
CD-ASB-9C-15	4/28/2006	window caulking (exterior)	windows adjacent to loading dock on S. wall of Bldg.	Trace Chrysotile (PC) ^a	N/A	N/A
CD-ASB-9C-01	6/8/2006	roofing material (top layer)	S. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 80%
CD-ASB-9C-02	6/8/2006	roofing material (2nd layer)	S. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 80%
CD-ASB-9C-03	6/8/2006	roofing material (3rd layer)	S. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 85%
CD-ASB-9C-04	6/8/2006	roofing material (4th layer)	S. end of Bldg.	10% Chrysotile ^a	N/A	Non-Fibrous 80%
CD-ASB-9C-05	6/8/2006	roofing materials (bottom layer)	S. end of Bldg.	PC Trace Chrysotile ^a	N/A	Non-Fibrous 5%
CD-ASB-9C-06	6/8/2006	roof flashing	S. end of Bldg.	PC 2.7 Chrysotile ^a	N/A	Non-Fibrous PC 97.3
Cluster 6, Building 10						
CD-ASB-10-01	4/27/2006	pipe insulation	overhead pipe at N. end of Bldg.	40% Chrysotile & 10% Amosite ^a	150 linear feet	Friable
CD-ASB-10-02	4/27/2006	pipe insulation	overhead pipe at N. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-10-03	4/27/2006	pipe insulation	overhead pipe at N. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-10-04	4/27/2006	gypsum wallboard	office wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-10-05	4/27/2006	gypsum wallboard	office wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-10-06	4/27/2006	gypsum wallboard	office wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-10-07	4/27/2006	joint compound (on gypsum wallboard)	office wall at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-10-08	4/27/2006	fiberboard (wall)	office wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-10-09	4/27/2006	fiberboard (wall)	office wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-10-10	4/27/2006	fiberboard (wall)	office wall at W. end of Bldg.	None Detected	N/A	N/A

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-10-11	4/27/2006	caulking (exterior - between metal panels)	SE corner of Bldg.	1.5% Chrysotile (PC) ^a	4,000 linear feet	Non-Friable
CD-ASB-10-12	4/27/2006	caulking (exterior - between metal panels)	SE corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-10-13	4/27/2006	caulking (exterior - between metal panels)	S. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-10-14	4/27/2006	fiberboard (wall)	Dup of -09	None Detected	N/A	N/A
CD-ASB-10-15	4/27/2006	12"x12" floor tile (gray)	bathroom floor at NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-10-16	4/27/2006	12"x12" floor tile (gray)	bathroom floor at NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-10-17	4/27/2006	12"x12" floor tile (gray)	bathroom floor at NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-10-18	4/27/2006	2'x4' acoustical ceiling tile	office ceiling at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-10-19	4/27/2006	2'x4' acoustical ceiling tile	office ceiling at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-10-20	4/27/2006	2'x4' acoustical ceiling tile	office ceiling at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-10-21	4/27/2006	12"x12" floor tile (tan)	bathroom floor at NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-10-22	4/27/2006	12"x12" floor tile (tan)	bathroom floor at NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-10-23	4/27/2006	12"x12" floor tile (tan)	bathroom floor at NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-10-24	4/27/2006	tar (exterior - at base of building)	S. end of Bldg.	6.3% Chrysotile (PC) ^a	150 linear feet	Non-Friable
CD-ASB-10-25	4/27/2006	tar (exterior - at base of building)	S. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-10-26	4/27/2006	tar (exterior - at base of building)	S. end of Bldg.	Not Analyzed ^a	---	---
CDR-ASB-10-01	6/8/2006	roofing material (top layer)	S. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 75%
CDR-ASB-10-02	6/8/2006	roofing material (middle layer)	S. end of Bldg.	PC 3.8 Chrysotile ^a	N/A	Non-Fibrous PC 91.2
CDR-ASB-10-03	6/8/2006	roofing material (bottom layer)	S. end of Bldg.	PC 1.5 Chrysotile ^a	N/A	Non-Fibrous PC 78.5
CDR-ASB-10-04	6/8/2006	roof flashing	S. end of Bldg.	PC 6.3 Chrysotile ^a	N/A	Non-Fibrous PC 88.7
CDR-ASB-10-05	6/8/2006	roofing material (top layer)	Dup of -CDR-01	PC 1.4 Chrysotile ^a	N/A	Non-Fibrous PC 68.6
CDR-ASB-10-06	6/8/2006	roofing material (middle layer)	Dup of -CDR-02	PC 4.3 Chrysotile ^a	N/A	Non-Fibrous PC 90.7
CDR-ASB-10-07	6/8/2006	roofing material (bottom layer)	Dup of -CDR-03	PC Trace Chrysotile ^a	N/A	Non-Fibrous PC 70
CDR-ASB-10-08	6/8/2006	roof flashing	Dup of -CDR-04	PC 4.8 Chrysotile ^a	N/A	Non-Fibrous PC 90.2
Cluster 6, Shed						
CD-ASB-SHED-01	4/26/2006	window caulking (exterior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ABB-SHED-02	4/26/2006	window caulking (exterior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-SHED-03	4/26/2006	window caulking (exterior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-SHED-04	6/8/2006	siding (exterior)	W. end of Bldg.	25% Chrysotile ^a	N/A	Non-Fibrous 70%
CD-ASB-SHED-05	6/8/2006	siding (exterior)	S. end of Bldg.	30% Chrysotile ^a	N/A	Non-Fibrous 65%

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

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^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-SHED-06	6/8/2006	siding (exterior)	N. end of tank	30% Chrysotile ^a	N/A	Non-Fibrous 65%
CDR-ASB-SHED-01	6/8/2006	roofing material	W. end of Bldg.	20% Chrysotile ^a	N/A	Non-Fibrous 80%
CDR-ASB-SHED-02	6/8/2006	roofing material	Dup of -CDR-01	20% Chrysotile ^a	N/A	Non-Fibrous 80%
Cluster 7, Building 11						
CD-ASB-11-01	5/1/2006	textured ceiling	bathroom ceiling in SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-11-02	5/1/2006	textured ceiling	bathroom ceiling in SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-11-03	5/1/2006	textured ceiling	bathroom ceiling in SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-11-04	5/1/2006	gypsum wallboard	bathroom wall in SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-11-05	5/1/2006	gypsum wallboard	bathroom wall in SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-11-06	5/1/2006	gypsum wallboard	bathroom wall in SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-11-07	5/1/2006	fiberboard (wall/ ceiling)	wall at S. end of Bldg.	None Detected	N/A	N/A
CD-ASB-11-08	5/1/2006	fiberboard (wall/ ceiling)	wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-11-09	5/1/2006	fiberboard (wall/ ceiling)	wall at S. end of Bldg.	None Detected	N/A	N/A
CD-ASB-11-10	5/1/2006	window caulking (interior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-11-11	5/1/2006	window caulking (interior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-11-12	5/1/2006	window caulking (interior)	windows at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-11-13	5/1/2006	12"x12" floor tile (white - under carpet)	office floor at E. end of Bldg.	0.3% Chrysotile (PC) ^a	N/A	N/A
CD-ASB-11-14	5/1/2006	12"x12" floor tile (white - under carpet)	office floor at E. end of Bldg.	0.5% Chrysotile (PC) ^a	N/A	N/A
CD-ASB-11-15	5/1/2006	12"x12" floor tile (white - under carpet)	office floor at E. end of Bldg.	Trace Chrysotile (PC) ^a	N/A	N/A
CD-ASB-11-16	5/1/2006	9"x9" floor tile (tan - under 12"x12" floor tile (white))	office floor at E. end of Bldg.	2.4% Chrysotile (PC) ^a	175 square feet	Non-Friable
CD-ASB-11-17	5/1/2006	9"x9" floor tile (tan - under 12"x12" floor tile (white))	office floor at E. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-11-18	5/1/2006	9"x9" floor tile (tan - under 12"x12" floor tile (white))	office floor at E. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-11-19	5/1/2006	textured ceiling	Dup of -01	None Detected	N/A	N/A
CD-ASB-11-20	5/1/2006	fiberboard (wall/ ceiling)	Dup of -07	None Detected	N/A	N/A
Cluster 7, Building 12						
CD-ASB-12-01	4/21/2006	12"x12" floor tile (gray)	floor E. of offices at W. end of Bldg.	1.9% Chrysotile (PC) ^a	175 square feet	Non-Friable
CD-ASB-12-02	4/21/2006	12"x12" floor tile (gray)	floor E. of offices at W. end of Bldg.	2.2% Chrysotile (PC) ^a	(included in quantity above)	Non-Friable
CD-ASB-12-03	4/21/2006	12"x12" floor tile (gray)	floor E. of offices at W. end of Bldg.	2.4% Chrysotile (PC) ^a	(included in quantity above)	Non-Friable
CD-ASB-12-04	4/21/2006	12"x12" floor tile (gray) mastic	floor E. of offices at W. end of Bldg.	None Detected ^a	N/A	N/A

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-12-05	4/21/2006	gypsum wallboard	bathroom wall at NW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-12-06	4/21/2006	gypsum wallboard	office wall at NW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-12-07	4/21/2006	gypsum wallboard	office wall at SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-12-08	4/21/2006	fiberboard (wall/ ceiling -soft)	office wall at SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-12-09	4/21/2006	fiberboard (wall/ ceiling -soft)	office wall at SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-12-10	4/21/2006	fiberboard (wall/ ceiling -soft)	wall at S. end of Bldg.	None Detected	N/A	N/A
CD-ASB-12-11	4/21/2006	fiberboard (wall/ ceiling -soft)	wall at S. end of Bldg.	None Detected	N/A	N/A
CD-ASB-12-12	4/21/2006	fiberboard (wall/ ceiling -soft)	wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-12-13	4/21/2006	fiberboard (wall/ ceiling -soft)	wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-12-14	4/21/2006	fiberboard (wall/ ceiling - hard)	wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-12-15	4/21/2006	fiberboard (wall/ ceiling - hard)	wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-12-16	4/21/2006	fiberboard (wall/ ceiling - hard)	wall at S. end of Bldg.	None Detected	N/A	N/A
CD-ASB-12-17	4/21/2006	fiberboard (wall/ ceiling - hard)	wall at S. end of Bldg.	None Detected	N/A	N/A
CD-ASB-12-18	4/21/2006	fiberboard (wall/ ceiling - hard)	wall at S. end of Bldg.	None Detected	N/A	N/A
CD-ASB-12-19	4/21/2006	fiberboard (wall/ ceiling - hard)	wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-12-20	4/21/2006	transite panel (wall/ ceiling)	wall at NW corner of Bldg.	25% Chrysotile ^a	2,500 square feet (included in quantity above)	Non-Friable
CD-ASB-12-21	4/21/2006	transite panel (wall/ ceiling)	wall at NE corner of Bldg.	25% Chrysotile ^a		Non-Friable
CD-ASB-12-22	4/21/2006	transite panel (wall/ ceiling)	wall at NE corner of Bldg.	25% Chrysotile ^a		Non-Friable
CD-ASB-12-23	4/21/2006	mastic (under wood floor)	office floor at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-12-24	4/21/2006	mastic (under wood floor)	office floor at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-12-25	4/21/2006	mastic (under wood floor)	office floor at NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-12-26	4/21/2006	joint compound (on gypsum wallboard)	office wall at NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-12-27	4/21/2006	window caulking (exterior)	windows at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-12-28	4/21/2006	window caulking (exterior)	windows at W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-12-29	4/21/2006	window caulking (exterior)	windows at SW end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-12-30	4/21/2006	transite panel (wall/ ceiling)	Dup of -20	25% Chrysotile ^a	N/A	N/A
CD-ASB-12-31	4/21/2006	12"x12" floor tile (gray)	Dup of -01	1.8% Chrysotile (PC) ^a	N/A	N/A
Cluster 8, Building 13						
CD-ASB-13-01	4/26/2006	gypsum wallboard	office wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-13-02	4/26/2006	gypsum wallboard	office wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-13-03	4/26/2006	gypsum wallboard	office wall at NW corner of Bldg.	None Detected	N/A	N/A

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-13-04	4/26/2006	9"x9" floor tile (brown under carpet)	office floor at N. end of Bldg.	1.3% Chrysotile (PC) ^a	300 square feet	Non-Friable
CD-ASB-13-05	4/26/2006	9"x9" floor tile (brown under carpet)	office floor at N. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-13-06	4/26/2006	9"x9" floor tile (brown under carpet)	office floor at N. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-13-07	4/26/2006	1'x1' acoustical ceiling tile	office ceiling at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-13-08	4/26/2006	1'x1' acoustical ceiling tile	office ceiling at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-13-09	4/26/2006	1'x1' acoustical ceiling tile	office ceiling at NW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-13-10	4/26/2006	fiberboard (ceiling - above 1'x1' acoustical ceiling tile)	office ceiling at NW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-13-11	4/26/2006	fiberboard (ceiling - above 1'x1' acoustical ceiling tile)	office ceiling at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-13-12	4/26/2006	fiberboard (ceiling - above 1'x1' acoustical ceiling tile)	office ceiling at NW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-13-13	4/26/2006	window caulking (exterior)	windows at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-13-14	4/26/2006	window caulking (exterior)	windows at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-13-15	4/26/2006	window caulking (exterior)	windows at N. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-13-16	4/26/2006	9"x9" floor tile (brown under carpet)	Dup of -05	1.2% Chrysotile (PC) ^a	N/A	N/A
Cluster 8, Building 15						
CD-ASB-15-01	5/1/2006	fiberboard (wall)	office wall at SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-15-02	5/1/2006	fiberboard (wall)	office wall at SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-15-03	5/1/2006	fiberboard (wall)	office wall at SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-15-04	5/1/2006	gypsum wallboard	bathroom wall at NE corner of Bldg.	None Detected	N/A	N/A
CD-ASB-15-05	5/1/2006	gypsum wallboard	bathroom wall at NE corner of Bldg.	None Detected	N/A	N/A
CD-ASB-15-06	5/1/2006	gypsum wallboard	bathroom wall at NE corner of Bldg.	None Detected	N/A	N/A
CD-ASB-15-07	5/1/2006	fiberboard (wall)	Dup of -03	None Detected	N/A	N/A
CD-ASB-15-08	5/1/2006	tar (exterior - at base of building)	S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-15-09	5/1/2006	tar (exterior - at base of building)	S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-15-10	5/1/2006	tar (exterior - at base of building)	S. end of Bldg.	None Detected ^a	N/A	N/A
Cluster 8, Building 16						
CD-ASB-16-01	5/2/2006	window caulking (interior)	windows at SE corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-16-02	5/2/2006	window caulking (interior)	windows at SE corner of Bldg.	None Detected ^a	N/A	N/A

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

Note: Asbestos results were determined by Polarized Light Microscopy (PLM) only. The data was not confirmed by Transmission Electron Microscopy per the June 5, 2006 New Jersey Emergency Rule.

^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-16-03	5/2/2006	window caulking (interior)	windows at SE corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-16-04	5/2/2006	tar (exterior - at base of building)	S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-16-05	5/2/2006	tar (exterior - at base of building)	SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-16-06	5/2/2006	tar (exterior - at base of building)	S. end of Bldg.	None Detected ^a	N/A	N/A
Cluster 8, Building 17						
CD-ASB-17-01	4/25/2006	tar (exterior - at base of building)	NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-17-02	4/25/2006	tar (exterior - at base of building)	NE corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-17-03	4/25/2006	tar (exterior - at base of building)	SE corner of Bldg.	None Detected ^a	N/A	N/A
CDR-ASB-17-01	6/8/2006	roofing material (top layer)	NE corner of Bldg.	None Detected ^a	N/A	Non-Fibrous 85%
CDR-ASB-17-02	6/8/2006	roofing material (middle layer)	NE corner of Bldg.	None Detected ^a	N/A	Non-Fibrous 85%
CDR-ASB-17-03	6/8/2006	roofing material (middle layer)	NE corner of Bldg.	PC Trace Chrysotile ^a	N/A	Non-Fibrous 80%
CDR-ASB-17-04	6/8/2006	roof flashing	NE corner of Bldg.	None Detected ^a	N/A	Non-Fibrous 100%
Cluster 8, Building 18						
CD-ASB-18-01	4/19/2006	pipe insulation debris	debris in trench in basement of Bldg.	10% Chrysotile & 10% Amosite ^a	100 cubic feet	Friable
CD-ASB-18-02	4/19/2006	pipe insulation debris	debris in trench in basement of Bldg.	35% Chrysotile ^a	(included in quantity above)	Friable
CD-ASB-18-03	4/19/2006	pipe insulation debris	debris in trench in basement of Bldg.	10% Chrysotile & 10% Amosite ^a	(included in quantity above)	Friable
CD-ASB-18-04	4/19/2006	gypsum wallboard	office wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-18-05	4/19/2006	gypsum wallboard	office wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-18-06	4/19/2006	gypsum wallboard	office wall at E. end of Bldg.	None Detected	N/A	N/A
CDR-ASB-18-01	6/7/2006	roofing material	E. end of Bldg.	PC 0.3 Chrysotile ^a	N/A	Non-Fibrous PC 79.7
CDR-ASB-18-02	6/7/2006	roof flashing	E. end of Bldg.	10% Chrysotile ^a	N/A	Non-Fibrous 88%
Cluster 9, Building 7						
CD-ASB-07-01	4/26/2006	gypsum wallboard	wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-07-02	4/26/2006	gypsum wallboard	bathroom wall at W. end of Bldg.	None Detected	N/A	N/A
CD-ASB-07-03	4/26/2006	gypsum wallboard	wall at E. end of Bldg.	None Detected	N/A	N/A
CD-ASB-07-04	4/26/2006	transite siding (exterior)	wall at SE corner of Bldg.	15% Chrysotile ^a	2,500 square feet	Non-Friable
CD-ASB-07-05	4/26/2006	transite siding (exterior)	wall at S. end of Bldg.	20% Chrysotile ^a	(included in quantity above)	Non-Friable
CD-ASB-07-06	4/26/2006	transite siding (exterior)	wall at NE corner of Bldg.	15% Chysotile ^a	(included in quantity above)	Non-Friable
CD-ASB-07-07	4/26/2006	tar paper (under transite siding)	wall at SE corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-07-08	4/26/2006	tar paper (under transite siding)	wall at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-07-09	4/26/2006	tar paper (under transite siding)	wall at SE corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-07-10	4/26/2006	roll roofing (under tar paper)	wall at SE corner of Bldg.	None Detected ^a	N/A	N/A

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

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^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-07-11	4/26/2006	roll roofing (under tar paper)	wall at SE corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-07-12	4/26/2006	roll roofing (under tar paper)	wall at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-07-13	4/26/2006	window caulking (exterior)	wall at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-07-14	4/26/2006	window caulking (exterior)	wall at S. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-07-15	4/26/2006	window caulking (exterior)	wall at N. end of Bldg.	None Detected ^a	N/A	N/A
CDR-ASB-07-01	6/8/2006	roofing material (top layer)	N. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 85%
CDR-ASB-07-02	6/8/2006	roofing material (2nd layer)	N. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 80%
CDR-ASB-07-03	6/8/2006	roofing material (3rd layer)	N. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 60%
CDR-ASB-07-04	6/8/2006	roofing material (bottom layer)	N. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 70%
Cluster 10, Water Tower						
No samples collected						
Cluster 10, Oil Tank						
CD-ASB-OT-01	4/19/2006	tar on piping	N. end of tank	10% Chrysotile ^a	2 linear feet (12" pipe)	Non-Friable
CD-ASB-OT-02	4/19/2006	tar on piping	N. end of tank	25% Chrysotile ^a	(included in quantity above)	Non-Friable
CD-ASB-OT-03	4/19/2006	tar on piping	N. end of tank	10% Chrysotile ^a	(included in quantity above)	Non-Friable
Cluster 11, Building 14						
CD-ASB-14-01	4/19/2006	gypsum wallboard	office wall at SW corner of Bldg.	None Detected	N/A	N/A
CD-ASB-14-02	4/19/2006	gypsum wallboard	bathroom wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-14-03	4/19/2006	gypsum wallboard	bathroom wall at N. end of Bldg.	None Detected	N/A	N/A
CD-ASB-14-04	4/19/2006	9"x9" floor tile (brown)	office floor at SW corner of Bldg.	2.4% Chrysotile (PC) ^a	200 square feet	Non-Friable
CD-ASB-14-05	4/19/2006	9"x9" floor tile (brown)	office floor at SW corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-14-06	4/19/2006	9"x9" floor tile (brown)	office floor at SW corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-14-07	4/19/2006	9"x9" floor tile (brown) mastic	office floor at SW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-14-08	4/19/2006	pipe insulation	pipe on 2nd floor at W. end of Bldg.	65% Chrysotile ^a	125 linear feet	Friable
CD-ASB-14-09	4/19/2006	pipe insulation	pipe on 1st floor adjacent to office at W. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-14-10	4/19/2006	pipe insulation	pipe on 1st floor adjacent to office at W. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-14-11	4/19/2006	exterior siding (brick)	W. end of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-14-12	4/19/2006	exterior siding (brick)	NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-14-13	4/19/2006	exterior siding (brick)	NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-14-14	4/19/2006	tar paper (under exterior siding (brick))	NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-14-15	4/19/2006	tar paper (under exterior siding (brick))	NW corner of Bldg.	None Detected ^a	N/A	N/A

**Table 1. Summary of Asbestos (PLM) Data
Cornell-Dubilier Electronics Superfund Site**

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^a Sample represents material believed to contain non-friable organically-bound asbestos. Sample is considered positive for asbestos, despite a possible "None Detected" result obtained from standard PLM analysis.

Sample Number	Date Collected	Material Description	Sample Location	Analytical Result	Approximate Quantity of Material	Friable/ Non-Friable
CD-ASB-14-16	4/19/2006	tar paper (under exterior siding (brick))	NW corner of Bldg.	None Detected ^a	N/A	N/A
CD-ASB-14-17	4/19/2006	tar patch (exterior siding)	E. end of Bldg.	10% Chrysotile ^a	60 square feet	Non-Friable
CD-ASB-14-18	4/19/2006	tar patch (exterior siding)	E. end of Bldg.	Not Analyzed ^a	---	---
CD-ASB-14-19	4/19/2006	tar patch (exterior siding)	SE corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-14-20	4/19/2006	9"x9" floor tile (brown)	Dup of -04	2.1% Chrysotile (PC) ^a	N/A	N/A
CD-ASB-14-21	4/19/2006	door caulking (exterior)	exterior door at SW corner of Bldg.	4.1% Chrysotile (PC) ^a	15 linear feet	Non-Friable
CD-ASB-14-22	4/19/2006	door caulking (exterior)	exterior door at SW corner of Bldg.	Not Analyzed ^a	---	---
CD-ASB-14-23	4/19/2006	door caulking (exterior)	exterior door at SW corner of Bldg.	Not Analyzed ^a	---	---
CDR-ASB-14-01	6/7/2006	roofing material (top layer)	S. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 80%
CDR-ASB-14-02	6/7/2006	roofing material (middle layer)	S. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 75%
CDR-ASB-14-03	6/7/2006	roofing material (bottom layer)	S. end of Bldg.	None Detected ^a	N/A	Non-Fibrous 80%

Table 2. Summary of Window Caulking and Paint Chip Sample Locations

Sample Number	Date Collected	Material Description	Sample Location
Cluster 1, Building 1			
CD-PCB-01-PC-01	4/28/2006	white paint on brick	W. wall of Bldg.
Cluster 1, Building 1A			
CD-PCB-1A-PC-01	5/2/2006	white paint on concrete	E. wall of Bldg.
CD-PCB-1A-PC-02	5/2/2006	white paint on concrete	Dup of -PC-01
CD-PCB-1A-WC-01	5/2/2006	window caulking (interior)	windows at NE corner of Bldg.
Cluster 1, Building 1B			
CD-PCB-1B-PC-01	4/27/2006	blue paint on brick	wall at SW corner of Bldg.
CD-PCB-1B-PC-02	4/27/2006	blue paint on brick	Dup of -PC-01
CD-PCB-1B-WC-01	4/27/2006	window caulking (interior)	windows at S. end of Bldg.
CD-PCB-1B-WC-02	4/27/2006	window caulking (interior)	Dup of -WC-01
Cluster 1, Building 1C			
CD-PCB-1C-PC-01	4/24/2006	white paint on brick	W. wall of Bldg.
CD-PCB-1C-WC-01	4/24/2006	window caulking (interior)	windows at W. end of Bldg.
Cluster 1, Building 1D			
CD-PCB-1D-PC-01	5/2/2006	white paint on wood	ceiling at S. end of Bldg.
Cluster 1, Building 6			
CD-PCB-06-PC-01	4/24/2006	gray paint on brick	exterior wall at SW corner of Bldg.
CD-PCB-06-WC-01	4/24/2006	window caulking (interior)	windows at N. end of Bldg.
Cluster 2, Building 2			
CD-PCB-02-PC-01	4/28/2006	tan paint over brick	exterior wall at SW corner of Bldg.
CD-PCB-02-WC-01	4/28/2006	window caulking (interior)	windows at SW corner of Bldg.
Cluster 2, Building 2A			
CD-PCB-2A-PC-01	4/27/2006	white paint on brick	wall at SE corner of Bldg.
CD-PCB-2A-WC-01	4/27/2006	window/ wood panel caulking (exterior)	windows/panels at N. end of Bldg.

Table 2. Summary of Window Caulking and Paint Chip Sample Locations

Sample Number	Date Collected	Material Description	Sample Location
Cluster 2, Building 3/4			
CD-PCB-34-PC-01	4/25/2006	gray paint on brick	wall at SE corner of Bldg.
CD-PCB-34-WC-01	4/25/2006	window caulking (interior)	windows at W. end of Bldg.
Cluster 2, Building 4A			
CD-PCB-4A-PC-01	5/1/2006	white paint on wood	N. wall of Bldg.
Cluster 3, Building 5			
CD-PCB-05-PC-01	5/2/2006	white paint on cinderblock	S. exterior wall of Bldg.
CD-PCB-05-WC-01	5/2/2006	window caulking (interior)	windows on S. end of Bldg.
Cluster 3, Building 5A			
CD-PCB-5A-PC-01	5/1/2006	blue/gray paint on cinderblock	exterior wall at NE corner of Bldg.
CD-PCB-5A-WC-01	5/1/2006	window caulking (interior)	windows at NW end of Bldg.
Cluster 4, Building 8			
CD-PCB-08-PC-01	4/26/2006	white paint on concrete	N. wall of Bldg.
CD-PCB-08-WC-01	4/26/2006	window caulking (interior)	windows at NW corner of Bldg.
Cluster 5, Building 9			
CD-PCB-09-PC-01	4/21/2006	white paint on brick	N. wall of Bldg.
CD-PCB-09-WC-01	4/21/2006	window caulking (exerior)	windows at NW corner of Bldg.
Cluster 5, Building 9A			
CD-PCB-9A-PC-01	4/20/2006	gray paint on brick	W. wall of Bldg.
CD-PCB-9A-WC-01	4/20/2006	window caulking (interior)	windows at S. end of Bldg.
Cluster 5, Building 9B			
CD-PCB-9B-PC-01	4/25/2006	blue paint on cinder block	S. exterior wall of Bldg.
CD-PCB-9B-WC-01	4/25/2006	window caulking (interior)	windows at S. end of Bldg.

Table 2. Summary of Window Caulking and Paint Chip Sample Locations

Sample Number	Date Collected	Material Description	Sample Location
Cluster 5, Building 9C			
CD-PCB-9C-PC-01	4/28/2006	gray paint on metal	exterior overhead beam at E. end of building
CD-PCB-9C-WC-01	4/28/2006	window caulking (interior)	windows at S. end of Bldg.
Cluster 6, Building 10			
CD-PCB-10-PC-01	4/27/2006	gray paint on metal	E. exterior wall of Bldg.
CD-PCB-10-WC-01	4/27/2006	metal panel caulking (exterior)	S. wall of Bldg.
Cluster 6, Shed			
CD-PCB-SHED-PC-01	4/26/2006	blue paint on metal	exterior electrical conduit on SW corner of Bldg.
CD-PCB-SHED-WC-01	4/26/2006	window caulking (exterior)	windows at S. end of Bldg.
Cluster 7, Building 11			
CD-PCB-11-PC-01	5/1/2006	gray paint on metal	W. exterior wall of Bldg.
CD-PCB-11-WC-01	5/1/2006	window caulking (interior)	S. wall of Bldg. (in bathroom)
CD-PCB-11-WC-02	5/1/2006	window caulking (interior)	Dup of -WC-01
Cluster 7, Building 12			
CD-PCB-11-PC-01	5/1/2006	gray paint on metal	W. exterior wall of Bldg.
CD-PCB-11-WC-01	5/1/2006	window caulking (exterior)	windows at W. end of Bldg.
Cluster 8, Building 13			
CD-PCB-13-PC-01	4/26/2006	brown paint on wood	door frame on W. wall of Bldg.
CD-PCB-13-WC-01	4/26/2006	window caulking (exterior)	windows at W. end of Bldg.
Cluster 8, Building 15			
CD-PCB-15-PC-01	5/1/2006	gray paint on metal	door at N. end of Bldg.
Cluster 8, Building 16			
CD-PCB-16-PC-01	5/2/2006	white paint on concrete	W. wall of Bldg.
CD-PCB-16-WC-01	5/2/2006	window caulking (interior)	windows at SE corner of Bldg.
Cluster 8, Building 17			
CD-PCB-17-PC-01	4/25/2006	paint on concrete	N. exterior wall of Bldg.
Cluster 8, Building 18			
CD-PCB-18-WC-01	4/19/2006	door caulking (exterior)	door at S. end of Bldg.

Table 2. Summary of Window Caulking and Paint Chip Sample Locations

Sample Number	Date Collected	Material Description	Sample Location
Cluster 9, Building 7			
CD-PCB-07-WC-01	4/26/2006	window caulking (exerior)	windows at N. end of Bldg.
Cluster 10, Water Tower			
CD-PCB-WT-PC-01	4/20/2006	blue paint on metal	SE metal leg of tower
Cluster 11, Building 14			
CD-PCB-14-PC-01	4/19/2006	red paint on wood	door frame on E. wall of Bldg.
CD-PCB-14-WC-01	4/19/2006	door caulking (exterior)	W. wall of Bldg.
Cluster 12, Oil Tank			
CD-PCB-OT-PC-01	4/19/2006	blue paint on metal	E. side of tank wall

Table 3. Summary of Core Sample Locations

Core Sample No.	Date Collected	Recovery (in.)	Comments
Cluster 1, Building 1			
CD-COR-1-F-01	4/28/2006	9"	Slab thickness approx. 9" No rebar
CD-COR-1-W-03	4/28/2006	NA	Concrete Block
CD-COR-1-F-02	5/1/2006	6"	No rebar
CD-COR-1-W-04	5/1/2006	NA	Concrete Block
Cluster 1, Building 1A			
CD-COR-1A-F-01	4/27/2006	6"	Slab thickness approx. 3.5" two cores collected for adequate sample volume
CD-COR-1A-F-02	4/27/2006	7.5"	Two cores collected for adequate sample volume
CD-COR-1A-W-03	4/27/2006	NA	Concrete Block
CD-COR-1A-W-04	4/27/2006	6"	Brick and Motar
Cluster 1, Building 1B			
No samples taken			
Cluster 1, Building 1C			
CD-COR-1C-F-01	4/26/2006	6"	Slab thickness approx. 6" No rebar.
CD-COR-1C-F-02	4/26/2006	6"	No rebar
CD-COR-1C-W-03	4/26/2006	5"	Brick and Motar
CD-COR-1C-W-04	4/26/2006	NA	Concrete Block
Cluster 1, Building 1D			
No samples taken			
Cluster 1, Building 6			
CD-COR-6-F-01	4/21/2006	7"	Total slab thickness approx. 7", no rebar
CD-COR-6-F-02	4/21/2006	9"	No rebar
CD-COR-6-W-03	4/21/2006	6"	Two 3" cores collected
CD-COR-6-W-04	4/21/2006	6.5"	Two 3+" cores collected
Cluster 2, Building 2			
CD-COR-2-F-01	4/28/2006	4.5"	Slab thickness approx. 4.5" No rebar
CD-COR-2-F-02	4/28/2006	5"	No rebar
CD-COR-2-W-03	4/28/2006	5"	Brick and Motar
CD-COR-2-W-04	4/28/2006	NA	Concrete Block
Cluster 2, Building 2A			
CD-COR-2A-F-01	4/27/2006	8"	Slab Thickness 4", two cores collected for adequate sample volume
CD-COR-2A-F-02	4/27/2006	8"	Slab Thickness 4", two cores collected for adequate sample volume
CD-COR-2A-W-03	4/27/2006	N/A	Concrete Block
CD-COR-2A-W-04	4/27/2006	5.5"	Poured Concrete
Cluster 2, Building 3/4			
CD-COR-3/4-F-01	4/25/2006	5.5"	Slab thickness 5.5", no rebar
CD-COR-3/4-F-02	4/25/2006	5.5"	No rebar
CD-COR-3/4-W-03	4/25/2006	8"	Brick and Motar
CD-COR-3/4-W-04	4/25/2006	10"	Brick and Motar
Cluster 2, Building 4A			
CD-COR-4A-F-01	4/25/2006	8"	Slab thickness 8" in this area of bldg. no rebar
CD-COR-4A-F-02	4/25/2006	5.5"	No rebar

Table 3. Summary of Core Sample Locations

Core Sample No.	Date Collected	Recovery (in.)	Comments
Cluster 3, Building 5			
CD-COR-5-F-01	4/24/2006	8"	Total slab thickness approx. 4", two cores collected for adequate sample volume
CD-COR-5-F-02	4/24/2006	5.5"	No rebar
CD-COR-5-W-03	4/24/2006	N/A	Concrete Block
CD-COR-5-W-04	4/24/2006	N/A	Concrete Block
Cluster 3, Building 5A			
CD-COR-5A-F-01	4/24/2006	5"	Total slab thickness approx. 5"
CD-COR-5A-F-02	4/24/2006	9"	Two cores collected for adequate sample volume
CD-COR-5A-W-03	5/1/2006	N/A	Brick and Motar
CD-COR-5A-W-04	5/1/2006	N/A	Brick and Motar
Cluster 4, Building 8			
CD-COR-8-F-01	4/27/2006	7.5"	Slab thickness 7.5", no rebar
CD-COR-8-F-02	4/27/2006	N/A	Concrete Block
CD-COR-8-W-03	4/28/2006	4.75"	No rebar
CD-COR-8-W-04	4/28/2006	N/A	Concrete Block
Cluster 5, Building 9			
CD-COR-9-F-01	4/21/2006	6"	Slab thickness approx. 6", no rebar
CD-COR-9-F-02	4/21/2006	10"	Rebar in bottom 3" of core
CD-COR-9-W-03	4/21/2006	8"	Brick and Motar
CD-COR-9-W-04	4/21/2006	8"	Brick and Motar
Cluster 5, Building 9A			
CD-COR-9A-F-01	4/21/2006	6"	Slab thickness approx. 6", no rebar
CD-COR-9A-F-02	4/21/2006	5.5"	No rebar
CD-COR-9A-W-03	4/21/2006	8"	Brick and Motar
CD-COR-9A-W-04	4/21/2006	8"	Brick and Motar
Cluster 5, Building 9B			
CD-COR-9B-F-01	4/25/2006	10"	Slab appears to be two layers of concrete
CD-COR-9B-F-02	4/25/2006	8"	No rebar
CD-COR-9B-W-03	4/25/2006	N/A	Concrete Block
CD-COR-9B-W-04	4/25/2006	7"	Brick and Motar
Cluster 5, Building 9C			
CD-COR-9C-F-01	4/28/2006	8"	Slab thickness 8", no rebar
CD-COR-9C-F-02	4/28/2006	5.5"	No rebar
CD-COR-9C-W-03	4/28/2006	N/A	Brick and Motar
CD-COR-9C-W-04	4/28/2006	N/A	Concrete Block
Cluster 6, Building 10			
CD-COR-10-F-01	4/27/2006	5"	Slab thickness approx. 6", no rebar
CD-COR-10-F-02	4/27/2006	6"	No rebar
Cluster 6, Building 10A			
CD-COR-10A-F-01	4/26/2006	4.75"	No rebar
Cluster 6, Shed			
No samples taken			
Cluster 7, Building 11			
CD-COR-11-F-01	4/24/2006	7"	Slab thickness approx. 4", no rebar
CD-COR-11-F-02	4/24/2006	9"	No rebar
Cluster 7, Building 12			
CD-COR-12-F-01	4/24/2006	7"	Slab thickness approx. 3.5", No rebar
CD-COR-12-F-02	4/24/2006	5.5"	No rebar

Table 3. Summary of Core Sample Locations

Core Sample No.	Date Collected	Recovery (in.)	Comments
Cluster 8, Building 13			
CD-COR-13-F-01	4/26/2006	6"	Slab thickness approx. 6", no rebar
CD-COR-13-F-02	4/26/2006	6"	No rebar
CD-COR-13-W-03	4/26/2006	8"	Brick and Motar
CD-COR-13-W-04	4/26/2006	8"	Brick and Motar
Cluster 8, Building 15			
CD-COR-15-F-01	4/20/2006	6.5"	Subterranean area located beneath slab. No rebar observed
CD-COR-15-F-02	4/20/2006	6.5"	No rebar observed
CD-COR-15-W-03	5/1/2006	N/A	Brick and Motar
CD-COR-15-W-04	5/1/2006	N/A	Brick and Motar
Cluster 8, Building 16			
CD-COR-16-F-01	4/20/2006	5"	Slab thickness approx. 5"
CD-COR-16-F-02	4/20/2006	11.5"	Possible support column footing
CD-COR-16-W-03	4/20/2006	8"	Brick and Motar
CD-COR-16-W-04	4/20/2006	8"	Brick and Motar
Cluster 8, Building 17			
CD-COR-17-F-01	4/26/2006	5.5"	Slab thickness approx. 5.5"
Cluster 8, Building 18			
CD-COR-18-F-01	4/20/2006	10.5"	1st floor slab
CD-COR-18-F-02	4/20/2006	6"	Core collected through slab in basement area.
CD-COR-18-W-03	4/28/2006	N/A	Concrete Block
CD-COR-18-W-04	4/28/2006	N/A	Concrete Block
Cluster 9, Building 7			
CD-COR-7-F-01	4/26/2006	6"	Total slab thickness approx. 6", no rebar
CD-COR-7-F-02	4/26/2006	5.5"	No rebar
Cluster 10, Water Tower			
No samples taken			
Cluster 11, Building 14			
CD-COR-14-F-01	4/20/2006	4.5"	Slab thickness approx. 4.5", No rebar
CD-COR-14-F-02	4/20/2006	4.5"	No rebar
Cluster 12, Oil Tank			
No samples taken			

Table 4.
Summary of Window Caulking and Paint Chip Sampling Results - Cluster 1

Sample ID	TSCA	CDPCB01PC01			CDPCB1APC01			CDPCB1APC02			CDPCB1AWC01		
Building No.	Regulatory	1			1A			1A			1A		
Cluster No.	Limits	1			1			1			1		
Lab Sample No.		732087			732662			732663			732648		
Sampling Date		4/28/2006			5/2/2006			5/2/2006			5/2/2006		
Matrix		SOLID			SOLID			SOLID			SOLID		
Dilution Factor		5			200			100			50		
Units	mg/kg	mg/kg			mg/kg			mg/kg			mg/kg		
PESTICIDES/PCBs													
Aroclor-1016	50	0.16	U		6.6	U		3.3	U		1.6	U	
Aroclor-1221	50	0.16	U		6.6	U		3.3	U		1.6	U	
Aroclor-1232	50	0.16	U		6.6	U		3.3	U		1.6	U	
Aroclor-1242	50	0.16	U		6.6	U		3.3	U		1.6	U	
Aroclor-1248	50	0.75			6.6	U		3.3	U		1.6	U	
Aroclor-1254	50	3.8			160		J	120		J	53		
Aroclor-1260	50	0.16	U		6.6	U		3.3	U		1.6	U	
Aroclor-1262	50	0.16	U		6.6	U		3.3	U		1.6	U	
Aroclor-1268	50	0.16	U		6.6	U		3.3	U		1.6	U	

Table 4.
Summary of Window Caulking and Paint Chip Sampling Results - Cluster 1

Sample ID	TSCA	CDPCB1BPC01		CDPCB1BPC02		CDPCB1BWC01		CDPCB1BWC02	
Building No.	Regulatory	1B		1B		1B		1B	
Cluster No.	Limits	1		1		1		1	
Lab Sample No.		732617		732618		732621		732622	
Sampling Date		4/27/2006		4/27/2006		4/27/2006		4/27/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		200		200		50		50	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	6.6	U	6.6	U	1.6	U	1.6	U
Aroclor-1221	50	6.6	U	6.6	U	1.6	U	1.6	U
Aroclor-1232	50	6.6	U	6.6	U	1.6	U	1.6	U
Aroclor-1242	50	6.6	U	6.6	U	1.6	U	1.6	U
Aroclor-1248	50	6.6	U	6.6	U	1.6	U	1.6	U
Aroclor-1254	50	180		200		51		55	
Aroclor-1260	50	6.6	U	6.6	U	1.6	U	1.6	U
Aroclor-1262	50	6.6	U	6.6	U	1.6	U	1.6	U
Aroclor-1268	50	6.6	U	6.6	U	1.6	U	1.6	U

Table 4.
Summary of Window Caulking and Paint Chip Sampling Results - Cluster 1

Sample ID	TSCA	CDPCB1CWC01		CDPCB1CPC01		CDPCB1DWC01		CDPCB06WC01	
Building No.	Regulatory	1C		1C		1D		6	
Cluster No.	Limits	1		1		1		1	
Lab Sample No.		730083		730085		732647		730084	
Sampling Date		4/24/2006		4/24/2006		5/2/2006		4/24/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		250		1000		20		500	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	8.2	U	33	U	0.66	U	16	U
Aroclor-1221	50	8.2	U	33	U	0.66	U	16	U
Aroclor-1232	50	8.2	U	33	U	0.66	U	16	U
Aroclor-1242	50	8.2	U	33	U	0.66	U	16	U
Aroclor-1248	50	8.2	U	33	U	0.66	U	16	U
Aroclor-1254	50	220		600		15		390	
Aroclor-1260	50	8.2	U	220	J	0.66	U	16	U
Aroclor-1262	50	8.2	U	33	U	0.66	U	16	U
Aroclor-1268	50	8.2	U	33	U	0.66	U	16	U

Table 4.
Summary of Window Caulking and Paint Chip Sampling Results - Cluster 1

Sample ID	TSCA	CDPCB06PC01		
Building No.	Regulatory	6		
Cluster No.	Limits	1		
Lab Sample No.		730086		
Sampling Date		4/24/2006		
Matrix		SOLID		
Dilution Factor		50000		
Units	mg/kg	mg/kg		
PESTICIDES/PCBs				
Aroclor-1016	50	1600	U	
Aroclor-1221	50	1600	U	
Aroclor-1232	50	1600	U	
Aroclor-1242	50	1600	U	
Aroclor-1248	50	1600	U	
Aroclor-1254	50	52000		
Aroclor-1260	50	1600	U	
Aroclor-1262	50	1600	U	
Aroclor-1268	50	1600	U	

Table 5.
Summary of Core Sample PCB Results - Cluster 1

Sample ID	TSCA	CD_COR_1_W_03		CD-COR-1-F-02		CD-COR-1-W-04		CD-COR-1A-F-01	
Building No.	Regulatory	1		1		1		1	
Cluster No.	Limits	1		1		1		1	
Lab Sample No.		731963		732655		732656		732342	
Sampling Date		4/28/2006		5/1/2006		5/1/2006		4/27/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		10		1000		20		2	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	0.33	U	34	U	0.66	U	0.072	U
Aroclor-1221	50	0.33	U	34	U	0.66	U	0.072	U
Aroclor-1232	50	0.33	U	34	U	0.66	U	0.072	U
Aroclor-1242	50	0.33	U	34	U	0.66	U	0.072	U
Aroclor-1248	50	0.33	U	34	U	0.66	U	0.072	U
Aroclor-1254	50	6.7		760		15		2.4	
Aroclor-1260	50	0.33	U	34	U	0.66	U	0.072	U
Aroclor-1262	50	0.33	U	34	U	0.66	U	0.072	U
Aroclor-1268	50	0.33	U	34	U	0.66	U	0.072	U

Table 5.
Summary of Core Sample PCB Results - Cluster 1

Sample ID	TSCA	CD-COR-1A-F-02		CD-COR-1A-W-03		CD-COR-1A-W-04		CD-COR-1C-F-01	
Building No.	Regulatory	1A		1A		1A		1C	
Cluster No.	Limits	1		1		1		1	
Lab Sample No.		732343		732344		732345		730630	
Sampling Date		4/27/2006		4/27/2006		4/27/2006		4/26/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		10		1		1		1000	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	0.36	U	0.034	U	0.036	U	37	U
Aroclor-1221	50	0.36	U	0.034	U	0.036	U	37	U
Aroclor-1232	50	0.36	U	0.034	U	0.036	U	37	U
Aroclor-1242	50	0.36	U	0.034	U	0.036	U	37	U
Aroclor-1248	50	0.36	U	0.034	U	0.036	U	37	U
Aroclor-1254	50	15		0.23		0.11		1400	
Aroclor-1260	50	0.36	U	0.034	U	0.036	U	37	U
Aroclor-1262	50	0.36	U	0.034	U	0.036	U	37	U
Aroclor-1268	50	0.36	U	0.034	U	0.036	U	37	U

Table 5.
Summary of Core Sample PCB Results - Cluster 1

Sample ID	TSCA	CD-COR-1C-F-02		CD-COR-1C-W-03		CD-COR-1C-W-04		CD-COR-6-F-01	
Building No.	Regulatory	1C		1C		1C		6	
Cluster No.	Limits	1		1		1		1	
Lab Sample No.		730631		730632		730633		729309	
Sampling Date		4/26/2006		4/26/2006		4/26/2006		4/21/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		100		2		10		2000	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	3.6	U	0.071	U	0.33	U	71	U
Aroclor-1221	50	3.6	U	0.071	U	0.33	U	71	U
Aroclor-1232	50	3.6	U	0.071	U	0.33	U	71	U
Aroclor-1242	50	3.6	U	0.071	U	0.33	U	71	U
Aroclor-1248	50	3.6	U	0.071	U	0.33	U	71	U
Aroclor-1254	50	84		2.4		7.5		2200	
Aroclor-1260	50	3.6	U	0.071	U	0.33	U	71	U
Aroclor-1262	50	3.6	U	0.071	U	0.33	U	71	U
Aroclor-1268	50	3.6	U	0.071	U	0.33	U	71	U

Table 5.
Summary of Core Sample PCB Results - Cluster 1

Sample ID	TSCA	CD-COR-6-W-03		CD-COR-6-W-04		CD-COR-6-F-02		CD-COR-6-DUP	
Building No.	Regulatory	6		6		6		6	
Cluster No.	Limits	1		1		1		1	
Lab Sample No.		729310		729311		729312		729313	
Sampling Date		4/21/2006		4/21/2006		4/21/2006		4/21/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		25		10		50		100	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	0.85	U	0.34	U	1.8	U	3.6	U
Aroclor-1221	50	0.85	U	0.34	U	1.8	U	3.6	U
Aroclor-1232	50	0.85	U	0.34	U	1.8	U	3.6	U
Aroclor-1242	50	0.85	U	0.34	U	1.8	U	3.6	U
Aroclor-1248	50	0.85	U	0.34	U	1.8	U	3.6	U
Aroclor-1254	50	35		7.4		82		140	
Aroclor-1260	50	0.85	U	0.34	U	1.8	U	3.6	U
Aroclor-1262	50	0.85	U	0.34	U	1.8	U	3.6	U
Aroclor-1268	50	0.85	U	0.34	U	1.8	U	3.6	U

Table 6.
Summary of Core Sample TCLP Results - Cluster 1

Sample ID	RCRA	CD_COR_1_W_03		CD-COR-1-F-02		CD-COR-1-W-04		CD-COR-1A-F-01	
Building No.	Regulatory	1		1		1		1A	
Cluster No.	Limits	1		1		1		1	
Lab Sample No.		731963		732655		732656		732342	
Sampling Date		4/28/2006		5/1/2006		5/1/2006		4/27/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor									
Units	mg/l	mg/l		mg/l		mg/l		mg/l	
TCLP METALS									
Arsenic	5	0.023	U	0.023	U	0.023	U	0.023	U
Barium	100	0.21	B	0.11	B	0.08	B	0.15	B
Cadmium	1	0.0025	U	0.0025	U	0.0025	U	0.0025	U
Chromium	5	0.02	B	0.02	B	0.014	U	0.04	B
Lead	5	0.01	B	0.011	U	0.011	U	0.011	U
Mercury	0.2	0.0003		0.0001	U	0.0001	U	0.0001	U
Selenium	1	0.024	U	0.024	U	0.024	U	0.024	U
Silver	5	0.006	U	0.006	U	0.006	U	0.006	U

Table 6.
Summary of Core Sample TCLP Results - Cluster 1

Sample ID	RCRA	CD-COR-1A-F-02		CD-COR-1A-W-03		CD-COR-1A-W-04		CD-COR-1C-F-01	
Building No.	Regulatory	1A		1A		1A		1C	
Cluster No.	Limits	1		1		1		1	
Lab Sample No.		732343		732344		732345		730630	
Sampling Date		4/27/2006		4/27/2006		4/27/2006		4/26/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor									
Units	mg/l	mg/l		mg/l		mg/l		mg/l	
TCLP METALS									
Arsenic	5	0.023	U	0.023	U	0.023	U	0.023	U
Barium	100	0.85	B	0.44	B	0.65	B	0.31	B
Cadmium	1	0.0025	U	0.0025	U	0.0025	U	0.0025	U
Chromium	5	0.03	B	0.04	B	0.08		0.02	B
Lead	5	0.27		0.04	B	0.42		0.1	B
Mercury	0.2	0.0001	U	0.0001	U	0.0001	U	0.0001	U
Selenium	1	0.024	U	0.024	U	0.024	U	0.024	U
Silver	5	0.006	U	0.006	U	0.006	U	0.006	U

Table 6.
Summary of Core Sample TCLP Results - Cluster 1

Sample ID	RCRA	CD-COR-1C-F-02		CD-COR-1C-W-03		CD-COR-1C-W-04		CD-COR-6-F-01	
Building No.	Regulatory	1C		1C		1C		6	
Cluster No.	Limits	1		1		1		1	
Lab Sample No.		730631		730632		730633		729309	
Sampling Date		4/26/2006		4/26/2006		4/26/2006		4/21/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor									
Units	mg/l	mg/l		mg/l		mg/l		mg/l	
TCLP METALS									
Arsenic	5	0.023	U	0.023	U	0.023	U	0.024	U
Barium	100	0.19	B	0.22	B	0.26	B	0.46	B
Cadmium	1	0.0025	U	0.0025	U	0.0025	U	0.003	U
Chromium	5	0.014	U	0.014	U	0.02	B	0.015	U
Lead	5	0.011	U	0.08	B	0.011	U	0.013	U
Mercury	0.2	0.0001	U	0.0001	U	0.0001	U	0.0001	U
Selenium	1	0.024	U	0.024	U	0.024	U	0.025	U
Silver	5	0.006	U	0.006	U	0.006	U	0.013	U

Table 6.
Summary of Core Sample TCLP Results - Cluster 1

Sample ID	RCRA	CD-COR-6-W-03		CD-COR-6-W-04		CD-COR-6-F-02		CD-COR-6-DUP	
Building No.	Regulatory	6		6		6		6	
Cluster No.	Limits	1		1		1		1	
Lab Sample No.		729310		729311		729312		729313	
Sampling Date		4/21/2006		4/21/2006		4/21/2006		4/21/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor									
Units	mg/l	mg/l		mg/l		mg/l		mg/l	
TCLP METALS									
Arsenic	5	0.024	U	0.024	U	0.024	U	0.024	U
Barium	100	0.04	B	0.2	B	0.27	B	0.35	B
Cadmium	1	0.003	U	0.003	U	0.003	U	0.009	B
Chromium	5	0.015	U	0.015	U	0.015	U	0.015	U
Lead	5	0.013	U	0.013	U	0.013	U	0.013	U
Mercury	0.2	0.0001	B	0.0001	U	0.0001	U	0.0001	U
Selenium	1	0.025	U	0.025	U	0.025	U	0.025	U
Silver	5	0.013	U	0.013	U	0.013	U	0.013	U

Table 7.
Summary of Core Sample TAL Metals Results - Cluster 1

Sample ID	CD_COR_1_W_03			CD-COR-1-F-02			CD-COR-1-W-04			CD-COR-1A-F-01			CD-COR-1A-F-02		
Building No.	1			1			1			1A			1A		
Cluster No.	1			1			1			1			1		
Lab Sample No.	731963			732655			732656			732342			732343		
Sampling Date	4/28/2006			5/1/2006			5/1/2006			4/27/2006			4/27/2006		
Matrix	SOLID			SOLID			SOLID			SOLID			SOLID		
Dilution Factor															
Units	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
METALS															
Aluminum	3260			7370			4310			7290		J	9820		J
Antimony	0.99	U	J	1.2	U	J	1.3	U	J	1.3	U	J	1.3	U	J
Arsenic	1.7			3.8			1.6			0.75	B		3.2		
Barium	13.3	B		53.7			74.3			52.5			56.3		
Beryllium	0.19	B	R	0.31	B	R	0.18	B	R	0.3	B		0.48		
Cadmium	0.1	U		0.084	U		0.088	U		0.16	B	J	0.087	U	J
Calcium	32800			48700			42900			63800		J	87800		J
Chromium	4.4		J	15.8			7.8			5.8			18.3		
Cobalt	2.9	B	R	4.6	B	R	1.9	B	R	4.4	B	R	10.3	B	R
Copper	4.1	B	R	26.7		J	6.8		J	8.5		J	48		J
Iron	6230			20200			4220			3850			14700		
Lead	15.8			78.6		J	3.5		J	4.5		J	18.8		J
Magnesium	1880			2550			2570			3190		J	3670		J
Manganese	82.8		J	111			64.8			76.6		J	140		J
Mercury	1.1		R	0.1			0.38			0.018	U		0.018	U	
Nickel	1.7	B		6.1	B		5.6	B		6.2	B	J	9.4		J
Potassium	828	B		915	B		1090	B		577	B		479	B	
Selenium	0.97	U		0.88	U		0.92	U		0.92	U	J	0.91	U	J
Silver	0.24	U		0.29	U		0.31	U		0.31	U		0.3	U	
Sodium	921	B		773	B		427	B		540	B		186	B	
Thallium	0.97	U		0.98	U		1	U		1	U		1	U	
Vanadium	2.7	B		19.6			8.8	B		7.4	B		16.8		
Zinc	19.8		R	27.1			12.1		R	15.3		RJ	14.8		RJ

Table 7.
Summary of Core Sample TAL Metals Results - Cluster 1

Sample ID	CD-COR-1A-W-03			CD-COR-1A-W-04			CD-COR-1C-F-01			CD-COR-1C-F-02			CD-COR-1C-W-03		
Building No.	1A			1A			1C			1C			1C		
Cluster No.	1			1			1			1			1		
Lab Sample No.	732344			732345			730630			730631			730632		
Sampling Date	4/27/2006			4/27/2006			4/26/2006			4/26/2006			4/26/2006		
Matrix	SOLID			SOLID			SOLID			SOLID			SOLID		
Dilution Factor															
Units	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
METALS															
Aluminum	2510		J	860		J	9320		J	11100		J	366		J
Antimony	1.2	U	J	1.3	U	J	1.1	U	J	1.1	U	J	1	U	J
Arsenic	0.65	U		0.69	U		2.3			1.9			0.96	U	
Barium	15.2	B		101			56.4		J	60.1		J	54.9		J
Beryllium	0.2	B	R	0.14	B	R	0.37	B		0.39	B		0.021	U	
Cadmium	0.081	U	J	0.087	U	J	0.11	U		0.11	U		0.11	U	
Calcium	30800		J	561	B	J	78900			90500			1180		
Chromium	5.4			3.7			19.4		J	13.1		J	2.5		J
Cobalt	1.3	B	R	21.8		R	3	B		5.1	B		2.4	B	R
Copper	5.2		J	4	B	RJ	8.4			10.1			5.5		
Iron	3590			38300			11400		J	10100		J	1970		J
Lead	3.4		J	20.9		J	85.4		J	13.3		J	25.2		J
Magnesium	1450		J	190	B	J	3330		J	4640		J	142	B	J
Manganese	88.1		J	41		J	124		J	213		J	16.9		J
Mercury	0.11			0.05			0.35		J	0.02	B	J	0.45		J
Nickel	6.1	B	J	39.1		J	6.5	B	J	8.1	B	J	4.5	B	J
Potassium	292	B		1370			713	B		641	B		392	B	
Selenium	0.85	U	J	0.91	U	J	1.1	U	J	1	U	J	1	U	J
Silver	0.28	U		0.3	U		0.27	U		0.26	U		0.26	U	
Sodium	80.3	U		147	B		280	B		267	B		175	B	
Thallium	0.95	U		1	U		1.1	U		1	U		1	U	
Vanadium	4.6	B		3.2	B		21.2			17.3			1.6	B	
Zinc	10.5		RJ	11.3		RJ	18.1			16.2			8.8		

Table 7.
Summary of Core Sample TAL Metals Results - Cluster 1

Sample ID	CD-COR-1C-W-04			CD-COR-6-F-01			CD-COR-6-W-03			CD-COR-6-W-04			CD-COR-6-F-02		
Building No.	1C			6			6			6			6		
Cluster No.	1			1			1			1			1		
Lab Sample No.	730633			729309			729310			729311			729312		
Sampling Date	4/26/2006			4/21/2006			4/21/2006			4/21/2006			4/21/2006		
Matrix	SOLID			SOLID			SOLID			SOLID			SOLID		
Dilution Factor															
Units	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
METALS															
Aluminum	5900		J	6680			4610			6450			14500		
Antimony	0.99	U	J	1.7	B	J	1	U	J	1	U	J	1.1	U	J
Arsenic	1.3			9.2		J	1.2		J	3.1		J	2		J
Barium	30.1	B	J	171			42.7			51.8			77.6		
Beryllium	0.28	B		0.23	B		0.12	B		0.25	B		0.57		
Cadmium	0.1	U		13.7			0.14	B		0.1	U		0.11	U	J
Calcium	22100			66000			49200			73900			42800		
Chromium	10.4		J	17.1			7.6			11.2			20.9		
Cobalt	3.4	B		5.6	B	R	43.7		R	2.8	B	R	13.4		R
Copper	13.3			112		J	9.4		J	3.8	B	J	13.7		J
Iron	10800		J	19000			13500			8320			28100		J
Lead	4.7		J	423		J	5.8		J	1.5		RJ	14.4		J
Magnesium	3800		J	2810			3300			4300			5290		
Manganese	195		J	178			122			102			317		
Mercury	0.28		J	0.018	U		0.33			0.02	B		0.016	U	
Nickel	10.5		J	8.1	B		19.2			3.8	B		21.7		
Potassium	589	B		3360			803	B		1350			2010		
Selenium	0.97	U	J	1	U		0.99	U		0.98	U		1.1	U	
Silver	0.24	U		1.3	B	J	0.25	U	J	0.25	U	J	0.26	U	J
Sodium	215	B		2310			698	B		912	B		395	B	J
Thallium	0.97	U		1	U		0.99	U		0.98	U		1.1	U	
Vanadium	11			17.8			7.2	B		18.1			26		
Zinc	31.8			365			12.6		R	6.5		R	46.1		J

Table 7.
Summary of Core Sample TAL Metals Results - Cluster 1

Sample ID	CD-COR-6-DUP		
Building No.	6		
Cluster No.	1		
Lab Sample No.	729313		
Sampling Date	4/21/2006		
Matrix	SOLID		
Dilution Factor			
Units	mg/kg		
METALS			
Aluminum	6620		
Antimony	1.2	B	J
Arsenic	2.3		J
Barium	218		
Beryllium	0.23	B	
Cadmium	173		J
Calcium	66500		
Chromium	14.7		
Cobalt	5	B	R
Copper	46.3		J
Iron	8000		J
Lead	68.6		J
Magnesium	2970		
Manganese	150		
Mercury	0.06		
Nickel	7.7	B	
Potassium	3620		
Selenium	1	U	
Silver	0.46	B	J
Sodium	2970		J
Thallium	1	U	
Vanadium	14.5		
Zinc	185		J

Table 8.
Summary of Window Caulking and Paint Chip Sample Results - Cluster 2

Sample ID	TSCA	CDPCB02PC01			CDPCB02WC01			CDPCB2APC01			CDPCB2AWC01		
Building No.	Regulatory	2			2			2A			2A		
Cluster No.	Limits	2			2			2			2		
Lab Sample No.		732088			732090			732619			732623		
Sampling Date		4/28/2006			4/28/2006			4/27/2006			4/27/2006		
Matrix		SOLID			SOLID			SOLID			SOLID		
Dilution Factor		200			25			200			10		
Units	mg/kg	mg/kg			mg/kg			mg/kg			mg/kg		
PESTICIDES/PCBs													
Aroclor-1016	50	6.6	U		0.82	U		6.6	U		0.33	U	
Aroclor-1221	50	6.6	U		0.82	U		6.6	U		0.33	U	
Aroclor-1232	50	6.6	U		0.82	U		6.6	U		0.33	U	
Aroclor-1242	50	6.6	U		0.82	U		6.6	U		0.33	U	
Aroclor-1248	50	6.6	U		4.8			6.6	U		0.33	U	
Aroclor-1254	50	230			19			210			5.6		
Aroclor-1260	50	6.6	U		0.82	U		6.6	U		0.33	U	
Aroclor-1262	50	6.6	U		0.82	U		6.6	U		0.33	U	
Aroclor-1268	50	6.6	U		0.82	U		6.6	U		0.33	U	

Table 8.
Summary of Window Caulking and Paint Chip Sample Results - Cluster 2

Sample ID	CDPCB34WC01			CDPCB34PC01			CDPCB4APC01		
Building No.	3/4			3/4			4A		
Cluster No.	2			2			2		
Lab Sample No.	732055			732057			732658		
Sampling Date	4/25/2006			4/25/2006			5/2/2006		
Matrix	SOLID			SOLID			SOLID		
Dilution Factor	25			100			200		
Units	mg/kg			mg/kg			mg/kg		
PESTICIDES/PCBs									
Aroclor-1016	0.82	U		3.3	U		6.6	U	
Aroclor-1221	0.82	U		3.3	U		6.6	U	
Aroclor-1232	0.82	U		3.3	U		6.6	U	
Aroclor-1242	0.82	U		3.3	U		6.6	U	
Aroclor-1248	0.82	U		3.3	U		6.6	U	
Aroclor-1254	20			67			240		
Aroclor-1260	0.82	U		3.3	U		6.6	U	
Aroclor-1262	0.82	U		3.3	U		6.6	U	
Aroclor-1268	0.82	U		3.3	U		6.6	U	

Table 9.
Summary of Core Sample PCB Results - Cluster 2

Sample ID	TSCA	CD_COR_2_F_01		CD_COR_2_F_02		CD_COR_2_W_03		CD_COR_2_W_04	
Building No.	Regulatory	2		2		2		2	
Cluster No.	Limits	2		2		2		2	
Lab Sample No.		731958		731959		731960		731961	
Sampling Date		4/28/2006		4/28/2006		4/28/2006		4/28/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		5		10		1		2	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	0.16	U	0.33	U	0.033	U	0.066	U
Aroclor-1221	50	0.16	U	0.33	U	0.033	U	0.066	U
Aroclor-1232	50	0.16	U	0.33	U	0.033	U	0.066	U
Aroclor-1242	50	0.16	U	0.33	U	0.033	U	0.066	U
Aroclor-1248	50	0.16	U	0.33	U	0.033	U	0.36	
Aroclor-1254	50	2.1		5.4		0.12		1.4	
Aroclor-1260	50	0.16	U	0.33	U	0.033	U	0.066	U
Aroclor-1262	50	0.16	U	0.33	U	0.033	U	0.066	U
Aroclor-1268	50	0.16	U	0.33	U	0.033	U	0.066	U

Table 9.
Summary of Core Sample PCB Results - Cluster 2

Sample ID	TSCA	CD-COR-2A-F-01		CD-COR-2A-F-02		CD-COR-2A-W-03		CD-COR-2A-W-04	
Building No.	Regulatory	2A		2A		2A		2A	
Cluster No.	Limits	2		2		2		2	
Lab Sample No.		732346		732347		732348		732349	
Sampling Date		4/27/2006		4/27/2006		4/27/2006		4/27/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		10		10		1		1	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	0.37	U	0.34	U	0.043	U	0.036	U
Aroclor-1221	50	0.37	U	0.34	U	0.043	U	0.036	U
Aroclor-1232	50	0.37	U	0.34	U	0.043	U	0.036	U
Aroclor-1242	50	0.37	U	0.34	U	0.043	U	0.036	U
Aroclor-1248	50	0.37	U	0.34	U	0.043	U	0.036	U
Aroclor-1254	50	8.5		4.5		0.13		0.16	
Aroclor-1260	50	0.37	U	0.34	U	0.043	U	0.036	U
Aroclor-1262	50	0.37	U	0.34	U	0.043	U	0.036	U
Aroclor-1268	50	0.37	U	0.34	U	0.043	U	0.036	U

Table 9.
Summary of Core Sample PCB Results - Cluster 2

Sample ID	TSCA	CD_COR_3-4_F_02		CD_COR_3-4_F_01		CD_COR_3-4_W_03		CD_COR_3-4_W_04	
Building No.	Regulatory	3, 4		3, 4		3, 4		3, 4	
Cluster No.	Limits	2		2		2		2	
Lab Sample No.		732081		732082		732083		732084	
Sampling Date		4/25/2006		4/25/2006		4/25/2006		4/25/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		1		5		1		1	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	0.036	U	0.18	U	0.038	U	0.035	U
Aroclor-1221	50	0.036	U	0.18	U	0.038	U	0.035	U
Aroclor-1232	50	0.036	U	0.18	U	0.038	U	0.035	U
Aroclor-1242	50	0.036	U	0.18	U	0.038	U	0.035	U
Aroclor-1248	50	0.036	U	0.18	U	0.038	U	0.035	U
Aroclor-1254	50	0.44		3.7		0.088	J	0.056	
Aroclor-1260	50	0.036	U	0.18	U	0.038	U	0.035	U
Aroclor-1262	50	0.036	U	0.18	U	0.038	U	0.035	U
Aroclor-1268	50	0.036	U	0.18	U	0.038	U	0.035	U

Table 9.
Summary of Core Sample PCB Results - Cluster 2

Sample ID	TSCA	CD_COR_4A_F_01		CD_COR_4A_DUP		CD_COR_4A_F_02	
Building No.	Regulatory	4A		4A		4A	
Cluster No.	Limits	2		2		2	
Lab Sample No.		732078		732079		732080	
Sampling Date		4/25/2006		4/25/2006		4/25/2006	
Matrix		SOLID		SOLID		SOLID	
Dilution Factor		20		2		2	
Units	mg/kg	mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs							
Aroclor-1016	50	0.75	U	0.075	U	0.071	U
Aroclor-1221	50	0.75	U	0.075	U	0.071	U
Aroclor-1232	50	0.75	U	0.075	U	0.071	U
Aroclor-1242	50	0.75	U	0.075	U	0.071	U
Aroclor-1248	50	3.7	J	0.4	J	1	J
Aroclor-1254	50	17	J	2.4	J	1.4	
Aroclor-1260	50	0.75	U	0.075	U	0.071	U
Aroclor-1262	50	0.75	U	0.075	U	0.071	U
Aroclor-1268	50	0.75	U	0.075	U	0.071	U

Table 10.
Summary of Core Sample TCLP Results - Cluster 2

Sample ID	RCRA	CD_COR_2_F_01		CD_COR_2_F_02		CD_COR_2_W_03		CD_COR_2_W_04		CD-COR-2A-F-01	
Building No.	Regulatory	2		2		2		2		2A	
Cluster No.	Limits	2		2		2		2		2	
Lab Sample No.		731958		731959		731960		731961		732346	
Sampling Date		4/28/2006		4/28/2006		4/28/2006		4/28/2006		4/27/2006	
Matrix		SOLID		SOLID		SOLID		SOLID		SOLID	
Dilution Factor											
Units	mg/l	mg/l		mg/l		mg/l		mg/l		mg/l	
TCLP METALS											
Arsenic	5	0.023	U	0.023	U	0.023	U	0.023	U	0.023	U
Barium	100	0.51	B	0.48	B	0.17	B	0.24	B	0.48	B
Cadmium	1	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U
Chromium	5	0.02	B	0.04	B	0.014	U	0.014	U	0.05	B
Lead	5	0.04	B	0.03	B	0.011	U	0.011	U	0.06	B
Mercury	0.2	0.0001	U	0.0001	U	0.0001	B	0.0007		0.0001	U
Selenium	1	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U
Silver	5	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U

Table 10.
Summary of Core Sample TCLP Results - Cluster 2

Sample ID	RCRA	CD-COR-2A-F-02		CD-COR-2A-W-03		CD-COR-2A-W-04		CD_COR_3-4_F_02		CD_COR_3-4_F_01	
Building No.	Regulatory	2A		2A		2A		3, 4		3,4	
Cluster No.	Limits	2		2		2		2		2	
Lab Sample No.		732347		732348		732349		732081		732082	
Sampling Date		4/27/2006		4/27/2006		4/27/2006		4/25/2006		4/25/2006	
Matrix		SOLID		SOLID		SOLID		SOLID		SOLID	
Dilution Factor											
Units	mg/l	mg/l		mg/l		mg/l		mg/l		mg/l	
TCLP METALS											
Arsenic	5	0.023	U	0.023	U	0.023	U	0.023	U	0.023	U
Barium	100	0.44	B	0.26	B	0.3	B	0.19	B	0.09	B
Cadmium	1	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U
Chromium	5	0.03	B	0.09		0.03	B	0.014	U	0.014	U
Lead	5	0.02	B	0.011	U	0.011	U	0.011	U	0.011	U
Mercury	0.2	0.0001	U	0.0001	U	0.0001	U	0.0001	U	0.0001	U
Selenium	1	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U
Silver	5	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U

Table 10.
Summary of Core Sample TCLP Results - Cluster 2

Sample ID	RCRA	CD_COR_3-4_W_03		CD_COR_3-4_W_04		CD_COR_4A_F_01		CD_COR_4A_DUP		CD_COR_4A_F_02	
Building No.	Regulatory	3, 4		3, 4		4A		4A		4A	
Cluster No.	Limits	2		2		2		2		2	
Lab Sample No.		732083		732084		732078		732079		732080	
Sampling Date		4/25/2006		4/25/2006		4/25/2006		4/25/2006		4/25/2006	
Matrix		SOLID		SOLID		SOLID		SOLID		SOLID	
Dilution Factor											
Units	mg/l	mg/l		mg/l		mg/l		mg/l		mg/l	
TCLP METALS											
Arsenic	5	0.023	U	0.023	U	0.024	U	0.024	U	0.023	U
Barium	100	0.25	B	0.14	B	0.31	B	0.39	B	0.34	B
Cadmium	1	0.0025	U	0.0025	U	0.003	U	0.003	U	0.0025	U
Chromium	5	0.014	U	0.014	U	0.015	U	0.015	U	0.014	U
Lead	5	0.011	U	0.06	B	0.013	U	0.013	U	0.011	U
Mercury	0.2	0.0001	U	0.0001	U	0.0001	U	0.0001	U	0.0001	U
Selenium	1	0.024	U	0.024	U	0.025	U	0.025	U	0.024	U
Silver	5	0.006	U	0.006	U	0.013	U	0.013	U	0.006	U

Table 11.
Summary of Core Sample TAL Metals Results - Cluster 2

Sample ID	CD_COR_2_F_01			CD_COR_2_F_02			CD_COR_2_W_03			CD_COR_2_W_04			CD-COR-2A-F-01		
Building No.		2			2			2			2		2A		
Cluster No.		2			2			2			2		2		
Lab Sample No.	731958			731959			731960			731961			732346		
Sampling Date	4/28/2006			4/28/2006			4/28/2006			4/28/2006			4/27/2006		
Matrix	SOLID			SOLID			SOLID			SOLID			SOLID		
Dilution Factor															
Units	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
METALS															
Aluminum	8700			12500			1270			4430			13100		J
Antimony	1.1	U	J	1.1	U	J	1.1	U	J	0.99	U	J	1.3	U	J
Arsenic	2.4			2.3			1	U		2.3			1	B	
Barium	81.3			90.3			11.3	B		15.6	B		81.9		
Beryllium	0.29	B	R	0.54			0.04	B	R	0.23	B	R	0.61		
Cadmium	0.11	U		0.11	U		0.11	U		0.1	U		0.1	B	J
Calcium	44300			78700			11300		J	23300			71000		J
Chromium	9.3		J	12.6		J	2.7		R	9.5		J	14.5		
Cobalt	10.4	B	R	12.1		R	6.6	B	R	3.1	B	R	8.3	B	R
Copper	8.9			13.7			4.2	B		10.3			11.6		J
Iron	6210			12400			2840			10500			14300		
Lead	10			4.5			5			2.1			9.4		J
Magnesium	2000			6500			713	B		3510			5410		J
Manganese	86.7		J	335		J	48.3		J	125		J	773		J
Mercury	0.03	B	R	0.018	U		0.019	U		5.1		R	0.019	U	
Nickel	14.8			20.8			5.8	B		7.6	B		13.1		J
Potassium	567	B		1000	B		380	B		463	B		1340		
Selenium	1	U		1.1	U		1.1	U		0.97	B		0.94	U	J
Silver	0.26	U		0.26	U		0.27	U		0.24	U		0.31	U	
Sodium	796	B		304	B		201	B		127	B		433	B	
Thallium	1	U		1.1	U		1.1	U		0.97	U		1.1	U	
Vanadium	10.5	B		17.1			2.6	B		13.9			17.2		
Zinc	48.9			24.9		R	44.3			22		R	30.1		J

Table 11.
Summary of Core Sample TAL Metals Results - Cluster 2

Sample ID	CD-COR-2A-F-02			CD-COR-2A-W-03			CD-COR-2A-W-04			CD_COR_3-4_F_02			CD_COR_3-4_F_01		
Building No.	2A			2A			2A			3, 4			3, 4		
Cluster No.	2			2			2			2			2		
Lab Sample No.	732347			732348			732349			732081			732082		
Sampling Date	4/27/2006			4/27/2006			4/27/2006			4/25/2006			4/25/2006		
Matrix	SOLID			SOLID			SOLID			SOLID			SOLID		
Dilution Factor															
Units	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
METALS															
Aluminum	10600		J	8050		J	13400		J	6940			10100		
Antimony	1.2	U	J	1.5	U	J	1.3	U	J	1.3	U		1.3	U	
Arsenic	0.66	U		1.8			1.2			4.5	J		3.9		J
Barium	59.9			43.8	B		77.2			36	B		83.4		
Beryllium	0.5			0.37	B	R	0.62			0.5			0.55		
Cadmium	0.083	U	J	0.1	U	J	0.11	B	J	0.086	U		0.087	U	
Calcium	100600		J	125000		J	116700		J	61100			75600		
Chromium	10			25.7			12.9			13.7			15.5		
Cobalt	3.7	B	R	1.5	B	R	5.2	B	R	2.7	B	R	7	B	R
Copper	7.9		J	5.2	B	J	12.3		J	3.7	B		4	B	
Iron	8450			8100			12200			28500	J		22000		J
Lead	3.6		J	5.5		J	4.1		J	3.4			5.3		
Magnesium	4880		J	13900		J	6680		J	2450			3860		
Manganese	316		J	169		J	405		J	141	J		114		J
Mercury	0.017	U		0.022	U		0.018	U		0.01	B		0.02		
Nickel	7.9	B	J	8.6	B	J	11.1		J	4.5	B		9.6		
Potassium	859	B		858	B		2820			417	B		729	B	
Selenium	0.87	U	J	1.1	U	J	0.93	U	J	0.9	B		0.91	U	
Silver	0.29	U		0.37	U		0.31	U		0.3	U		0.3	U	
Sodium	320	B		392	B		1050			85.5	U		111	B	
Thallium	0.97	U		1.2	U		1	U		1	U		1	U	
Vanadium	12.7			10.2	B		17.2			18.6			18.7		
Zinc	16.2		RJ	11.5		RJ	24.1		RJ	14.8			25.2		

Table 11.
Summary of Core Sample TAL Metals Results - Cluster 2

Sample ID	CD_COR_3-4_W_03			CD_COR_3-4_W_04			CD_COR_4A_F_01			CD_COR_4A_DUP			CD_COR_4A_F_02		
Building No.	3, 4			3, 4			4A			4A			4A		
Cluster No.	2			2			2			2			2		
Lab Sample No.	732083			732084			732078			732079			732080		
Sampling Date	4/25/2006			4/25/2006			4/25/2006			4/25/2006			4/25/2006		
Matrix	SOLID			SOLID			SOLID			SOLID			SOLID		
Dilution Factor															
Units	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
METALS															
Aluminum	1010			560			11400			13900			12400		
Antimony	1.3	U		1.2	U		1.3	U		1.3	U		1.3	U	
Arsenic	2		J	0.69	U	J	0.83	B	J	0.87	B	J	0.95	B	J
Barium	150			61.3			64			85.2			65.5		
Beryllium	0.17	B	R	0.12	B	R	0.46			0.57			0.55		
Cadmium	0.092	U		0.086	U		0.091	U		0.17	B		0.086	U	
Calcium	2100			3410			71300			93600			88500		
Chromium	5.2			2.3			12.2			15.3			11.6		
Cobalt	4	B	R	3.3	B	R	10.7	B		7	B	R	4.8	B	R
Copper	2.8	B		1.8	B		12.5			14			19.9		
Iron	11400		J	2580			12700		J	12700		J	11100		J
Lead	7.7			601			6.3			9.1			2.9		
Magnesium	316	B		396	B		5320			5660			5740		
Manganese	133		J	19.2		J	267		J	364		J	268		J
Mercury	0.09			0.14			0.05			0.02	B		0.01	B	
Nickel	2	B		1.3	B		13.6			12.4			12.2		
Potassium	1200			287	B		937	B		1180			1130		
Selenium	0.97	U		0.9	U		0.96	U		0.96	U		0.91	U	
Silver	0.32	U		0.3	U		0.32	U		0.32	U		0.3	U	
Sodium	549	B		100	B		505	B		492	B		606	B	
Thallium	1.1	U		1	U		1.1	U		1.1	U		1	U	
Vanadium	7.7	B		1.4	B		19.8			20.7			17.2		
Zinc	35.1			31			27			31.4			17.9		

Table 12.
Summary of Window Caulking and Paint Chip Sample Results - Cluster 3

Sample ID	TSCA	CDPCB05PC01		CDPCB05WC01		CDPCB5APC01		CDPCB5AWC01	
Building No.	Regulatory	5		5		5A		5A	
Cluster No.	Limits	3		3		3		3	
Lab Sample No.		732664		732645		732659		732642	
Sampling Date		5/2/2006		5/2/2006		5/2/2006		5/2/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		500		500		100		500	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	16	U	16	U	3.3	U	16	U
Aroclor-1221	50	16	U	16	U	3.3	U	16	U
Aroclor-1232	50	16	U	16	U	3.3	U	16	U
Aroclor-1242	50	16	U	16	U	3.3	U	16	U
Aroclor-1248	50	250		470		9.9		170	
Aroclor-1254	50	430		640		51		570	
Aroclor-1260	50	16	U	16	U	3.3	U	16	U
Aroclor-1262	50	16	U	16	U	3.3	U	16	U
Aroclor-1268	50	16	U	16	U	3.3	U	16	U

Table 13.
Summary of Core Sample PCB Results - Cluster 3

Sample ID	TSCA	CD-COR-5-F-02		CD-COR-5-F-01		CD-COR-5-W-03		CD-COR-5-W-04		CD-COR-5A-F-02	
Building No.	Regulatory	5		5		5		5		5A	
Cluster No.	Limits	3		3		3		3		3	
Lab Sample No.		730197		730198		730199		730200		730201	
Sampling Date		4/24/2006		4/24/2006		4/24/2006		4/24/2006		4/24/2006	
Matrix		SOLID		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		500		50		10		100		100	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs											
Aroclor-1016	50	17	U	1.8	U	0.36	U	3.8	U	3.6	U
Aroclor-1221	50	17	U	1.8	U	0.36	U	3.8	U	3.6	U
Aroclor-1232	50	17	U	1.8	U	0.36	U	3.8	U	3.6	U
Aroclor-1242	50	17	U	1.8	U	0.36	U	3.8	U	3.6	U
Aroclor-1248	50	360		20		5.9		80		26	
Aroclor-1254	50	290		54		3.4		110		100	
Aroclor-1260	50	17	U	1.8	U	0.36	U	3.8	U	3.6	U
Aroclor-1262	50	17	U	1.8	U	0.36	U	3.8	U	3.6	U
Aroclor-1268	50	17	U	1.8	U	0.36	U	3.8	U	3.6	U

Table 13.
Summary of Core Sample PCB Results - Cluster 3

Sample ID	CD-COR-5A-F-01		CD-COR-5A-W-03		CD-COR-5A-W-04	
Building No.	5A		5A		5A	
Cluster No.	3		3		3	
Lab Sample No.	730202		732653		732654	
Sampling Date	4/24/2006		5/1/2006		5/1/2006	
Matrix	SOLID		SOLID		SOLID	
Dilution Factor	100		10		10	
Units	mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs						
Aroclor-1016	3.5	U	0.34	U	0.33	U
Aroclor-1221	3.5	U	0.34	U	0.33	U
Aroclor-1232	3.5	U	0.34	U	0.33	U
Aroclor-1242	3.5	U	0.34	U	0.33	U
Aroclor-1248	42		4.6		9.2	
Aroclor-1254	110		8.8		7.2	
Aroclor-1260	3.5	U	0.34	U	0.33	U
Aroclor-1262	3.5	U	0.34	U	0.33	U
Aroclor-1268	3.5	U	0.34	U	0.33	U

Table 14.
Summary of Core Sample TCLP Results - Cluster 3

Sample ID	RCRA	CD-COR-5-F-02		CD-COR-5-F-01		CD-COR-5-W-03		CD-COR-5-W-04		CD-COR-5A-F-02	
Building No.	Regulatory	5		5		5		5		5A	
Cluster No.	Limits	3		3		3		3		3	
Lab Sample No.		730197		730198		730199		730200		730201	
Sampling Date		4/24/2006		4/24/2006		4/24/2006		4/24/2006		4/24/2006	
Matrix		SOLID		SOLID		SOLID		SOLID		SOLID	
Dilution Factor											
Units	mg/l	mg/l		mg/l		mg/l		mg/l		mg/l	
TCLP METALS											
Arsenic	5	0.023	U	0.023	U	0.023	U	0.023	U	0.023	U
Barium	100	0.08	B	0.15	B	0.3	B	0.35	B	0.39	B
Cadmium	1	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U
Chromium	5	0.014	U	0.014	U	0.05	B	0.014	U	0.03	B
Lead	5	0.011	U	0.011	U	0.31		0.07	B	0.011	U
Mercury	0.2	0.0001	U	0.0001	U	0.0001	U	0.0001	B	0.0001	U
Selenium	1	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U
Silver	5	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U

Table 14.
Summary of Core Sample TCLP Results - Cluster 3

Sample ID	RCRA	CD-COR-5A-F-01		CD-COR-5A-W-03		CD-COR-5A-W-04	
Building No.	Regulatory	5A		5A		5A	
Cluster No.	Limits	3		3		3	
Lab Sample No.		730202		732653		732654	
Sampling Date		4/24/2006		5/1/2006		5/1/2006	
Matrix		SOLID		SOLID		SOLID	
Dilution Factor							
Units	mg/l	mg/l		mg/l		mg/l	
TCLP METALS							
Arsenic	5	0.023	U	0.023	U	0.023	U
Barium	100	0.44	B	0.15	B	0.11	B
Cadmium	1	0.0025	U	0.0025	U	0.0025	U
Chromium	5	0.05		0.014	U	0.014	U
Lead	5	0.011	U	0.05	B	0.011	U
Mercury	0.2	0.0001	U	0.0002		0.0001	U
Selenium	1	0.024	U	0.024	U	0.024	U
Silver	5	0.006	U	0.006	B	0.006	U

Table 15.
Summary of Core Sample TAL Metals Results - Cluster 3

Sample ID	CD-COR-5-F-02			CD-COR-5-F-01			CD-COR-5-W-03			CD-COR-5-W-04			CD-COR-5A-F-02		
Building No.	5			5			5			5			5		
Cluster No.	3			3			3			3			3		
Lab Sample No.	730197			730198			730199			730200			730201		
Sampling Date	4/24/2006			4/24/2006			4/24/2006			4/24/2006			4/24/2006		
Matrix	SOLID			SOLID			SOLID			SOLID			SOLID		
Dilution Factor															
Units	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
METALS															
Aluminum	10800			11200			3560			5110			9320		
Antimony	1.2	U	J	1.2	U	J	1.3	U	J	1.3	U	J	1.3	U	J
Arsenic	1.2		J	1.5		J	0.69	U	J	1.7		J	1.2		J
Barium	62.8			81.2			14.1	B		43	B		50.6		
Beryllium	0.39	B		0.48			0.17	B		0.26	B		0.41	B	
Cadmium	0.085	U		0.085	U		0.087	U		0.091	U		0.36	B	
Calcium	74200			90500			34400			41900			71600		
Chromium	10.4			12.9			6.7			7			9.5		
Cobalt	5.3	B	R	14.8			2.5	B	R	3.3	B	R	4.1	B	R
Copper	12.1			24.2			10.5			26.6			88.5		
Iron	9340			11300			4850			4700			7640		
Lead	4			93.3			2.4			16.5			21.8		
Magnesium	3900			3810			3620			1900			5400		
Manganese	142			256			58.1			61.8			630		
Mercury	0.03		J	0.02	B	J	0.02	B	J	0.35		J	0.1		J
Nickel	8.3			9.7			5.1	B		10.1			7.4	B	
Potassium	770	B		806	B		802	B		2060			1070		
Selenium	0.89	U		0.89	U		0.91	U		0.95	U		0.91	U	
Silver	0.3	U		0.3	U		0.3	U		0.32	U		0.61	B	
Sodium	266	B		302	B		324	B		1150			382	B	
Thallium	0.99	U		1	U		1	U		1.1	U		1	U	
Vanadium	13.7			13.4			9.7	B		12.2			11.4		
Zinc	16.4			27.2			6.5	B	R	11.6			82.5		

Table 15.
Summary of Core Sample TAL Metals Results - Cluster 3

Sample ID	CD-COR-5A-F-01			CD-COR-5A-W-03			CD-COR-5A-W-04		
Building No.	5A			5A			5A		
Cluster No.	3			3			3		
Lab Sample No.	730202			732653			732654		
Sampling Date	4/24/2006			5/1/2006			5/1/2006		
Matrix	SOLID			SOLID			SOLID		
Dilution Factor									
Units	mg/kg			mg/kg			mg/kg		
METALS									
Aluminum	7150			5490			8460		
Antimony	1.2	U	J	1.2	U	J	1.2	U	J
Arsenic	1.5		J	0.66	U		5.7		
Barium	126			47			160		
Beryllium	0.33	B		0.1	B	R	1.2		
Cadmium	0.82	B		0.083	U		0.081	U	
Calcium	62600			48000			74500		
Chromium	14.6			6.9			5.5		
Cobalt	4.5	B	R	4.2	B	R	0.61	B	R
Copper	32.3			15.2		J	51		J
Iron	10300			6340			5070		
Lead	76.4			6.5			27.3		J
Magnesium	7780			3060			11600		
Manganese	398			88.2			1000		
Mercury	0.06		J	3.5			0.014	U	
Nickel	15.7			11.2			2.6	B	
Potassium	861	B		1250			2280		
Selenium	0.9	U		0.87	U		1		
Silver	0.89	B		0.29	U		0.28	U	
Sodium	488	B		645	B		507	B	
Thallium	1	U		0.97	U		0.95	U	
Vanadium	10.7			16.8			5.8	B	
Zinc	237			12.2		R	158		

Table 16.
Summary of Window Caulking and Paint Chip Sample Results - Cluster 4

Sample ID	TSCA	CDPCB08WC01		CDPCB08PC01		
Building No.	Regulatory	8		8		
Cluster No.	Limits	4		4		
Lab Sample No.		732062		732065		
Sampling Date		4/26/2006		4/26/2006		
Matrix		SOLID		SOLID		
Dilution Factor		10		10		
Units	mg/kg	mg/kg		mg/kg		
PESTICIDES/PCBs						
Aroclor-1016	50	0.33	U	0.33	U	
Aroclor-1221	50	0.33	U	0.33	U	
Aroclor-1232	50	0.33	U	0.33	U	
Aroclor-1242	50	0.33	U	0.33	U	
Aroclor-1248	50	0.33	U	0.33	U	
Aroclor-1254	50	9.1		8		
Aroclor-1260	50	0.33	U	0.33	U	
Aroclor-1262	50	0.33	U	0.33	U	
Aroclor-1268	50	0.33	U	0.33	U	

Table 17.
Summary of Core Sample PCB Results - Cluster 4

Sample ID	TSCA	CD-COR-8-F-01		CD-COR-8-W-03		CD_COR_8_F_02		CD_COR_8_W_04	
Building No.	Regulatory	8		8		8		8	
Cluster No.	Limits	4		4		4		4	
Lab Sample No.		732352		732353		731956		731957	
Sampling Date		4/27/2006		4/27/2006		4/28/2006		4/28/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		5		1		5		5	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	0.18	U	0.035	U	0.16	U	0.16	U
Aroclor-1221	50	0.18	U	0.035	U	0.16	U	0.16	U
Aroclor-1232	50	0.18	U	0.035	U	0.16	U	0.16	U
Aroclor-1242	50	0.18	U	0.035	U	0.16	U	0.16	U
Aroclor-1248	50	0.18	U	0.035	U	0.16	U	0.97	J
Aroclor-1254	50	5.9		1.3		3.7		5	
Aroclor-1260	50	0.18	U	0.035	U	0.16	U	0.16	U
Aroclor-1262	50	0.18	U	0.035	U	0.16	U	0.16	U
Aroclor-1268	50	0.18	U	0.035	U	0.16	U	0.16	U

Table 18.
Summary of Core Sample TCLP Results - Cluster 4

Sample ID	RCRA	CD-COR-8-F-01		CD-COR-8-W-03		CD_COR_8_F_02		CD_COR_8_W_04	
Building No.	Regulatory	8		8		8		8	
Cluster No.	Limits	4		4		4		4	
Lab Sample No.		732352		732353		731956		731957	
Sampling Date		4/27/2006		4/27/2006		4/28/2006		4/28/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor									
Units	mg/l	mg/l		mg/l		mg/l		mg/l	
TCLP METALS									
Arsenic	5	0.023	U	0.023	U	0.023	U	0.023	U
Barium	100	0.06	B	0.12	B	0.77	B	0.49	B
Cadmium	1	0.0025	U	0.0025	U	0.0025	U	0.0025	U
Chromium	5	0.014	U	0.014	U	0.03	B	0.014	U
Lead	5	0.011	U	0.011	U	0.05	B	0.011	U
Mercury	0.2	0.0001	U	0.0001	U	0.0001	U	0.0002	B
Selenium	1	0.024	U	0.024	U	0.024	U	0.024	U
Silver	5	0.006	U	0.006	U	0.006	U	0.006	U

Table 19.
Summary of Core Sample TAL Metals Results - Cluster 4

Sample ID	CD-COR-8-F-01			CD-COR-8-W-03			CD_COR_8_F_02			CD_COR_8_W_04		
Building No.	8			8			8			8		
Cluster No.	4			4			4			4		
Lab Sample No.	732352			732353			731956			731957		
Sampling Date	4/27/2006			4/27/2006			4/28/2006			4/28/2006		
Matrix	SOLID			SOLID			SOLID			SOLID		
Dilution Factor												
Units	mg/kg			mg/kg			mg/kg			mg/kg		
METALS												
Aluminum	8970		J	4530		J	6110			4700		
Antimony	1.3	U	J	1.2	U	J	1	U	J	1	U	J
Arsenic	0.69	U		0.91	B		1.5			1.4		
Barium	38.1	B		50.1			32.1	B		52.2		
Beryllium	0.33	B	R	0.28	B	R	0.17	B	R	0.2	B	R
Cadmium	0.087	U	J	0.1	B	J	0.11	U		0.1	U	
Calcium	89800		J	59700		J	57000			59900		
Chromium	8.4			9			8.5		J	8.8		J
Cobalt	4	B	R	2.8	B	R	4	B	R	3.9	B	R
Copper	14		J	12.8		J	18.4			24.5		
Iron	7570			5270			7240			5410		
Lead	4.1		J	5.2		J	3			17		
Magnesium	5460		J	2260		J	3040			2170		
Manganese	163		J	67.4		J	106		J	73.8		J
Mercury	0.03	B		0.14			0.02	B	R	0.92		R
Nickel	7.6	B	J	10.8		J	9.5			12.5		
Potassium	550	B		1290			199	B		1400		
Selenium	0.91	U	J	0.9	U	J	1	U		0.99	U	
Silver	0.3	U		0.3	U		0.26	U		0.25	U	
Sodium	592	B		1040	B		397	B		649	B	
Thallium	1	U		1	U		1	U		0.99	U	
Vanadium	12.6			13.4			11.4			16.9		
Zinc	15.6		RJ	7.1		RJ	8.5		R	31.5		

Table 20.
Summary of Window Caulking and Paint Chip Sample Results - Cluster 5

Sample ID	TSCA	CDPCB09PC01			CDPCB09WC01			CDPCB9APC01		
Building No.	Regulatory	9			9			9A		
Cluster No.	Limits	5			5			5		
Lab Sample No.		729572			729574			728667		
Sampling Date		4/21/2006			4/21/2006			4/20/2006		
Matrix		SOLID			SOLID			SOLID		
Dilution Factor		250			10			250		
Units	mg/kg	mg/kg			mg/kg			mg/kg		
PESTICIDES/PCBs										
Aroclor-1016	50	8.2	U		0.33	U		8.2	U	
Aroclor-1221	50	8.2	U		0.33	U		8.2	U	
Aroclor-1232	50	8.2	U		0.33	U		8.2	U	
Aroclor-1242	50	8.2	U		0.33	U		8.2	U	
Aroclor-1248	50	8.2	U		0.33	U		8.2	U	
Aroclor-1254	50	290			8.8			110		
Aroclor-1260	50	8.2	U		0.33	U		8.2	U	
Aroclor-1262	50	8.2	U		0.33	U		8.2	U	
Aroclor-1268	50	8.2	U		0.33	U		8.2	U	

Table 20.
Summary of Window Caulking and Paint Chip Sample Results - Cluster 5

Sample ID	TSCA	CDPCB9AWC01			CDPCB9BPC01			CDPCB9CPC01		
Building No.	Regulatory	9A			9B			9C		
Cluster No.	Limits	5			5			5		
Lab Sample No.		728669			732056			732089		
Sampling Date		4/20/2006			4/25/2006			4/28/2006		
Matrix		SOLID			SOLID			SOLID		
Dilution Factor		20			5			200		
Units	mg/kg	mg/kg			mg/kg			mg/kg		
PESTICIDES/PCBs										
Aroclor-1016	50	0.66	U		0.16	U		6.6	U	
Aroclor-1221	50	0.66	U		0.16	U		6.6	U	
Aroclor-1232	50	0.66	U		0.16	U		6.6	U	
Aroclor-1242	50	0.66	U		0.16	U		6.6	U	
Aroclor-1248	50	0.66	U		0.16	U		6.6	U	
Aroclor-1254	50	15			2.8			120		
Aroclor-1260	50	0.66	U		0.16	U		6.6	U	
Aroclor-1262	50	0.66	U		0.16	U		6.6	U	
Aroclor-1268	50	0.66	U		0.16	U		6.6	U	

Table 20.
Summary of Window Caulking and Paint Chip Sample Results - Cluster 5

Sample ID	TSCA	CDPCB9CWC01			CDPCB9BWC01		
Building No.	Regulatory	9C			9B		
Cluster No.	Limits	5			5		
Lab Sample No.		732091			732054		
Sampling Date		4/28/2006			4/25/2006		
Matrix		SOLID			SOLID		
Dilution Factor		50			20		
Units	mg/kg	mg/kg			mg/kg		
PESTICIDES/PCBs							
Aroclor-1016	50	1.6	U		0.66	U	
Aroclor-1221	50	1.6	U		0.66	U	
Aroclor-1232	50	1.6	U		0.66	U	
Aroclor-1242	50	1.6	U		0.66	U	
Aroclor-1248	50	1.6	U		0.66	U	
Aroclor-1254	50	29			12		
Aroclor-1260	50	1.6	U		0.66	U	
Aroclor-1262	50	1.6	U		0.66	U	
Aroclor-1268	50	1.6	U		0.66	U	

Table 21.
Summary of Core Sample PCB Results - Cluster 5

Sample ID	TSCA	CD_COR_9B_F_02		CD_COR_9B_F_01		CD_COR_9B_W_03		CD_COR_9B_W_04	
Building No.	Regulatory	9B		9B		9B		9B	
Cluster No.	Limits	5		5		5		5	
Lab Sample No.		732073		732074		732075		732076	
Sampling Date		4/25/2006		4/25/2006		4/25/2006		4/25/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		1		5		1		1	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	0.036	U	0.18	U	0.038	U	0.035	U
Aroclor-1221	50	0.036	U	0.18	U	0.038	U	0.035	U
Aroclor-1232	50	0.036	U	0.18	U	0.038	U	0.035	U
Aroclor-1242	50	0.036	U	0.18	U	0.038	U	0.035	U
Aroclor-1248	50	0.036	U	0.8		0.17		0.035	U
Aroclor-1254	50	0.32		4		0.39		0.06	
Aroclor-1260	50	0.036	U	0.18	U	0.038	U	0.035	U
Aroclor-1262	50	0.036	U	0.18	U	0.038	U	0.035	U
Aroclor-1268	50	0.036	U	0.18	U	0.038	U	0.035	U

Table 21.
Summary of Core Sample PCB Results - Cluster 5

Sample ID	TSCA	CD_COR_9C_F_01		CD_COR_9C_F_02		CD_COR_9C_W_03		CD_COR_9C_W_04	
Building No.	Regulatory	9C		9C		9C		9C	
Cluster No.	Limits	5		5		5		5	
Lab Sample No.		731964		731965		731966		731967	
Sampling Date		4/28/2006		4/28/2006		4/28/2006		4/28/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		100		100		2		10	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	3.3	U	3.3	U	0.066	U	0.35	U
Aroclor-1221	50	3.3	U	3.3	U	0.066	U	0.35	U
Aroclor-1232	50	3.3	U	3.3	U	0.066	U	0.35	U
Aroclor-1242	50	3.3	U	3.3	U	0.066	U	0.35	U
Aroclor-1248	50	3.3	U	3.3	U	0.56		4	
Aroclor-1254	50	93		69		1.8		6.7	
Aroclor-1260	50	3.3	U	3.3	U	0.066	U	0.35	U
Aroclor-1262	50	3.3	U	3.3	U	0.066	U	0.35	U
Aroclor-1268	50	3.3	U	3.3	U	0.066	U	0.35	U

Table 21.
Summary of Core Sample PCB Results - Cluster 5

Sample ID	TSCA	CD-COR-9C-F-02		CD-COR-9-F-01		CD-COR-9-F-02		CD-COR-9-W-03	
Building No.	Regulatory	9C		9		9		9	
Cluster No.	Limits	5		5		5		5	
Lab Sample No.		732657		729314		729315		729316	
Sampling Date		4/28/2006		4/21/2006		4/21/2006		4/21/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		10		10		25		1	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	0.34	U	0.35	U	0.87	U	0.037	U
Aroclor-1221	50	0.34	U	0.35	U	0.87	U	0.037	U
Aroclor-1232	50	0.34	U	0.35	U	0.87	U	0.037	U
Aroclor-1242	50	0.34	U	0.35	U	0.87	U	0.037	U
Aroclor-1248	50	3.8		0.35	U	0.87	U	0.037	U
Aroclor-1254	50	15		14		34		0.23	
Aroclor-1260	50	0.34	U	0.35	U	0.87	U	0.037	U
Aroclor-1262	50	0.34	U	0.35	U	0.87	U	0.037	U
Aroclor-1268	50	0.34	U	0.35	U	0.87	U	0.037	U

Table 21.
Summary of Core Sample PCB Results - Cluster 5

Sample ID	TSCA	CD-COR-9-W-04		CD-COR-9A-F-02		CD-COR-9A-F-01		CD-COR-9A-W-03		
Building No.	Regulatory	9		9A		9A		9A		
Cluster No.	Limits	5		5		5		5		
Lab Sample No.		729317		729318		729319		729320		
Sampling Date		4/21/2006		4/21/2006		4/21/2006		4/21/2006		
Matrix		SOLID		SOLID		SOLID		SOLID		
Dilution Factor		1		25		5		5		
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		
PESTICIDES/PCBs										
Aroclor-1016	50	0.035	U	0.9	U	0.18	U	0.17	U	
Aroclor-1221	50	0.035	U	0.9	U	0.18	U	0.17	U	
Aroclor-1232	50	0.035	U	0.9	U	0.18	U	0.17	U	
Aroclor-1242	50	0.035	U	0.9	U	0.18	U	0.17	U	
Aroclor-1248	50	0.035	U	0.9	U	0.18	U	0.17	U	
Aroclor-1254	50	1.2		36		3.3		4.4		
Aroclor-1260	50	0.035	U	0.9	U	0.18	U	0.17	U	
Aroclor-1262	50	0.035	U	0.9	U	0.18	U	0.17	U	
Aroclor-1268	50	0.035	U	0.9	U	0.18	U	0.17	U	

Table 21.
Summary of Core Sample PCB Results - Cluster 5

Sample ID	TSCA	CD-COR-9A-W-04		
Building No.	Regulatory	9A		
Cluster No.	Limits	5		
Lab Sample No.		729321		
Sampling Date		4/21/2006		
Matrix		SOLID		
Dilution Factor		1		
Units	mg/kg	mg/kg		
PESTICIDES/PCBs				
Aroclor-1016	50	0.035	U	
Aroclor-1221	50	0.035	U	
Aroclor-1232	50	0.035	U	
Aroclor-1242	50	0.035	U	
Aroclor-1248	50	0.035	U	
Aroclor-1254	50	0.75		
Aroclor-1260	50	0.035	U	
Aroclor-1262	50	0.035	U	
Aroclor-1268	50	0.035	U	

Table 22.
Summary of Core Sample TCLP Results - Cluster 5

Sample ID	RCRA	CD_COR_9B_F_02			CD_COR_9B_F_01			CD_COR_9B_W_03		
Building No.	Regulatory	9B			9B			9B		
Cluster No.	Limits	5			5			5		
Lab Sample No.		732073			732074			732075		
Sampling Date		4/25/2006			4/25/2006			4/25/2006		
Matrix		SOLID			SOLID			SOLID		
Dilution Factor										
Units	mg/l	mg/l			mg/l			mg/l		
TCLP METALS										
Arsenic	5	0.024	U		0.024	U		0.024	U	
Barium	100	0.42	B		0.42	B		0.3	B	
Cadmium	1	0.003	U		0.003	U		0.003	U	
Chromium	5	0.25			0.1			0.015	U	
Lead	5	0.013	U		0.013	U		0.013	U	
Mercury	0.2	0.0001	U		0.0001	U		0.0004		
Selenium	1	0.025	U		0.025	U		0.025	U	
Silver	5	0.013	U		0.013	U		0.013	U	

Table 22.
Summary of Core Sample TCLP Results - Cluster 5

Sample ID	RCRA	CD_COR_9B_W_04			CD_COR_9C_F_01			CD_COR_9C_F_02		
Building No.	Regulatory	9B			9C			9C		
Cluster No.	Limits	5			5			5		
Lab Sample No.		732076			731964			731965		
Sampling Date		4/25/2006			4/28/2006			4/28/2006		
Matrix		SOLID			SOLID			SOLID		
Dilution Factor										
Units	mg/l	mg/l			mg/l			mg/l		
TCLP METALS										
Arsenic	5	0.024	U		0.023	U		0.023	U	
Barium	100	0.22	B		0.34	B		0.5	B	
Cadmium	1	0.003	U		0.0025	U		0.0025	U	
Chromium	5	0.1			0.014	U		0.014	U	
Lead	5	0.53			0.011	U		0.04	B	
Mercury	0.2	0.0001	U		0.0001	U		0.0001	U	
Selenium	1	0.025	U		0.024	U		0.024	U	
Silver	5	0.013	U		0.006	U		0.006	U	

Table 22.
Summary of Core Sample TCLP Results - Cluster 5

Sample ID	RCRA	CD_COR_9C_W_03			CD_COR_9C_W_04			CD-COR-9C-F-02		
Building No.	Regulatory	9C			9C			9C		
Cluster No.	Limits	5			5			5		
Lab Sample No.		731966			731967			732657		
Sampling Date		4/28/2006			4/28/2006			4/28/2006		
Matrix		SOLID			SOLID			SOLID		
Dilution Factor										
Units	mg/l	mg/l			mg/l			mg/l		
TCLP METALS										
Arsenic	5	0.023	U		0.023	U		0.023	U	
Barium	100	0.11	B		0.11	B		0.1	B	
Cadmium	1	0.006	B		0.0025	U		0.0025	U	
Chromium	5	0.014	U		0.014	U		0.014	U	
Lead	5	0.23	B		0.011	U		0.011	U	
Mercury	0.2	0.002			0.0001	U		0.0001	U	
Selenium	1	0.024	U		0.024	U		0.024	U	
Silver	5	0.006	U		0.006	U		0.006	U	

Table 22.
Summary of Core Sample TCLP Results - Cluster 5

Sample ID	RCRA	CD-COR-9-F-01			CD-COR-9-F-02			CD-COR-9-W-03		
Building No.	Regulatory	9			9			9		
Cluster No.	Limits	5			5			5		
Lab Sample No.		729314			729315			729316		
Sampling Date		4/21/2006			4/21/2006			4/21/2006		
Matrix		SOLID			SOLID			SOLID		
Dilution Factor										
Units	mg/l	mg/l			mg/l			mg/l		
TCLP METALS										
Arsenic	5	0.024	U		0.024	U		0.024	U	
Barium	100	0.33	B		0.32	B		0.06	B	
Cadmium	1	0.003	U		0.003	U		0.003	U	
Chromium	5	0.03	B		0.015	U		0.015	U	
Lead	5	0.013	U		0.013	U		0.013	U	
Mercury	0.2	0.0001	U		0.0001	U		0.0001	U	
Selenium	1	0.025	U		0.025	U		0.025	U	
Silver	5	0.013	U		0.013	U		0.013	U	

Table 22.
Summary of Core Sample TCLP Results - Cluster 5

Sample ID	RCRA	CD-COR-9-W-04			CD-COR-9A-F-02			CD-COR-9A-F-01		
Building No.	Regulatory	9			9A			9A		
Cluster No.	Limits	5			5			5		
Lab Sample No.		729317			729318			729319		
Sampling Date		4/21/2006			4/21/2006			4/21/2006		
Matrix		SOLID			SOLID			SOLID		
Dilution Factor										
Units	mg/l	mg/l			mg/l			mg/l		
TCLP METALS										
Arsenic	5	0.024	U		0.024	U		0.024	U	
Barium	100	0.11	B		0.24	B		0.19	B	
Cadmium	1	0.003	U		0.003	U		0.003	U	
Chromium	5	0.015	U		0.015	U		0.015	U	
Lead	5	0.02	B		0.013	U		0.013	U	
Mercury	0.2	0.0001	U		0.0001	U		0.0001	U	
Selenium	1	0.025	U		0.025	U		0.025	U	
Silver	5	0.013	U		0.013	U		0.013	U	

Table 22.
Summary of Core Sample TCLP Results - Cluster 5

Sample ID	RCRA	CD-COR-9A-W-03			CD-COR-9A-W-04		
Building No.	Regulatory	9A			9A		
Cluster No.	Limits	5			5		
Lab Sample No.		729320			729321		
Sampling Date		4/21/2006			4/21/2006		
Matrix		SOLID			SOLID		
Dilution Factor							
Units	mg/l	mg/l			mg/l		
TCLP METALS							
Arsenic	5	0.024	U		0.024	U	
Barium	100	0.07	B		0.43	B	
Cadmium	1	0.003	U		0.003	U	
Chromium	5	0.015	U		0.03	B	
Lead	5	0.013	U		0.02	B	
Mercury	0.2	0.0001	U		0.0003		
Selenium	1	0.025	U		0.025	U	
Silver	5	0.013	U		0.013	U	

Table 23.
Summary of Core Sample TAL Metals Results - Cluster 5

Sample ID	CD_COR_9B_F_02			CD_COR_9B_F_01			CD_COR_9B_W_03			CD_COR_9B_W_04		
Building No.	9B			9B			9B			9B		
Cluster No.	5			5			5			5		
Lab Sample No.	732073			732074			732075			732076		
Sampling Date	4/25/2006			4/25/2006			4/25/2006			4/25/2006		
Matrix	SOLID			SOLID			SOLID			SOLID		
Dilution Factor												
Units	mg/kg			mg/kg			mg/kg			mg/kg		
METALS												
Aluminum	7250			11500			3960			5730		
Antimony	1.3	U		1.3	U		1.3	U		1.2	U	
Arsenic	0.7	U	J	0.89	B	J	1.2		J	0.68	U	J
Barium	35.2	B		59.6			42	B		33.2	B	
Beryllium	0.55			0.7			0.22	B	R	0.27	B	R
Cadmium	0.088	U		0.087	U		0.093	U		0.085	U	
Calcium	57600			92700			45500			57600		
Chromium	38.6			34.1			8.1			6.4		
Cobalt	3.5	B	R	4.5	B	R	3	B	R	2.7	B	R
Copper	25.7			20.8			9.6			6.5		
Iron	6760		J	9310		J	4440		J	4750		J
Lead	2.2			3.8			2.2			5.2		
Magnesium	6830			7580			1780			2990		
Manganese	305		J	410		J	65.2		J	160		J
Mercury	0.03			0.03			1.2			0.04		
Nickel	16.6			14.3			9.5			6.1	B	
Potassium	598	B		952	B		1450			1590		
Selenium	0.92	U		0.91	U		0.98	U		0.9	U	
Silver	0.36	B		0.3	U		0.33	U		0.3	U	
Sodium	620	B		476	B		650	B		878	B	
Thallium	1	U		1	U		1.1	U		1	U	
Vanadium	16.6			18.4			14.9			7.2	B	
Zinc	26.3			29.8			10.2			11.4		

Table 23.
Summary of Core Sample TAL Metals Results - Cluster 5

Sample ID	CD_COR_9C_F_01			CD_COR_9C_F_02			CD_COR_9C_W_03			CD_COR_9C_W_04		
Building No.	9C			9C			9C			9C		
Cluster No.	5			5			5			5		
Lab Sample No.	731964			731965			731966			731967		
Sampling Date	4/28/2006			4/28/2006			4/28/2006			4/28/2006		
Matrix	SOLID			SOLID			SOLID			SOLID		
Dilution Factor												
Units	mg/kg			mg/kg			mg/kg			mg/kg		
METALS												
Aluminum	10500			8420			577			4520		
Antimony	1.1	U	J	1	U	J	5.2		J	1	U	J
Arsenic	4.5			6.9			0.9	U		1.4		
Barium	75.7			907			16.6	B		44.8		
Beryllium	0.48			0.43		R	0.02	U		0.16	B	R
Cadmium	0.5	B		3			0.18	B		0.15	B	
Calcium	72700			77700			1320			57100		
Chromium	19.1		J	46.5		J	2.4		J	7.1		J
Cobalt	4.8	B	R	4.9	B	R	2.3	B	R	3.1	B	R
Copper	67			116			111			55		
Iron	27100			29500			2680			4740		
Lead	14.5			150			52.3			3.4		
Magnesium	4330			4940			233	B		2190		
Manganese	234		J	238		J	28.6		J	67.3		J
Mercury	0.02	B	R	0.19		R	1.2		R	5.6		R
Nickel	8.5	B		30.2			3.9	B		12.4		
Potassium	744	B		841	B		325	B		948	B	
Selenium	1.1	B		1.4			0.96	U		1	U	
Silver	0.26	U		0.38	B		0.24	U		0.26	U	
Sodium	363	B		518	B		72.5	U		1350		
Thallium	1	U		0.99	U		0.96	U		1	U	
Vanadium	19.2			19.5			3.4	B		10.4	B	
Zinc	26.9		R	206			51.5			20.5		R

Table 23.
Summary of Core Sample TAL Metals Results - Cluster 5

Sample ID	CD-COR-9C-F-02			CD-COR-9-F-01			CD-COR-9-F-02			CD-COR-9-W-03		
Building No.	9C			9			9			9		
Cluster No.	5			5			5			5		
Lab Sample No.	732657			729314			729315			729316		
Sampling Date	4/28/2006			4/21/2006			4/21/2006			4/21/2006		
Matrix	SOLID			SOLID			SOLID			SOLID		
Dilution Factor												
Units	mg/kg			mg/kg			mg/kg			mg/kg		
METALS												
Aluminum	7000			8900			11900			1490		
Antimony	1.2	U	J	1	U	J	1	U	J	1.8	B	J
Arsenic	0.67	U		13.8		J	2.2		J	4.7		J
Barium	44.9			76.6			99.5			494		
Beryllium	0.06	B	R	0.44			0.4	B		0.06	B	
Cadmium	0.084	U		0.52	B		1.3			0.59	B	
Calcium	94100			83200			139100			12100		
Chromium	8.7			171			13.1			31.8		
Cobalt	3.3	B	R	4.4	B	R	7.2	B	R	5.3	B	R
Copper	13.5		J	45.8		J	33.8		J	52.4		J
Iron	7130			53800			8200			6850		
Lead	2.3		J	157		J	38.9		J	123		J
Magnesium	4880			3660			4970			880	B	
Manganese	97.9			204			255			106		
Mercury	0.02	B		0.03			0.05			0.17		
Nickel	7.1	B		56.9			9.7			9.4		
Potassium	840	B		2890			2300			1350		
Selenium	0.88	U		1.1			1	U		1.1	U	
Silver	0.29	U		0.26	U	J	0.25	U	J	0.27	U	J
Sodium	1340			1680			1980			613	B	
Thallium	0.98	U		1	U		1	U		1.1	U	
Vanadium	11.9			35.5			13.6			10.1	B	
Zinc	10.7		R	314			308			315		

Table 23.
Summary of Core Sample TAL Metals Results - Cluster 5

Sample ID	CD-COR-9-W-04			CD-COR-9A-F-02			CD-COR-9A-F-01			CD-COR-9A-W-03		
Building No.	9			9A			9A			9A		
Cluster No.	5			5			5			5		
Lab Sample No.	729317			729318			729319			729320		
Sampling Date	4/21/2006			4/21/2006			4/21/2006			4/21/2006		
Matrix	SOLID			SOLID			SOLID			SOLID		
Dilution Factor												
Units	mg/kg			mg/kg			mg/kg			mg/kg		
METALS												
Aluminum	712			12200			12900			4320		
Antimony	1.1	U	J	1.1	U	J	1.1	U	J	1	U	J
Arsenic	0.97	U	J	2.1		J	2.4		J	5.1		J
Barium	7.4	B		74			128			79.3		
Beryllium	0.022	U		0.54			0.53			0.19	B	
Cadmium	0.11	U		0.11	U		0.11	U		2.5		
Calcium	6300			56900			64300			29600		
Chromium	1.7	B		15.1			16.6			9		
Cobalt	0.75	U		9.9	B	R	11.5		R	3.2	B	R
Copper	2.5	B	J	6.8		J	9.8		J	12.7		J
Iron	1580			16700			19100			6350		
Lead	3.2		RJ	9.7		J	10.9		J	139		J
Magnesium	394	B		5350			6230			1800		
Manganese	16			486			495			114		
Mercury	0.018	U		0.018	U		0.016	U		0.018	U	
Nickel	0.84	U		17.3			17.5			5.4	B	
Potassium	402	B		1510			1380			534	B	
Selenium	1	U		1	U		1	U		1	U	
Silver	0.26	U	J	0.26	U	J	0.26	U	J	0.27	B	J
Sodium	112	B		232	B		258	B		222	B	
Thallium	1	U		1	U		1	U		1	U	
Vanadium	2.2	B		17.8			21.7			16.2		
Zinc	14.1			37.4			40.6			196		

Table 23.
Summary of Core Sample TAL Metals Results - Cluster 5

Sample ID	CD-COR-9A-W-04		
Building No.	9A		
Cluster No.	5		
Lab Sample No.	729321		
Sampling Date	4/21/2006		
Matrix	SOLID		
Dilution Factor			
Units	mg/kg		
METALS			
Aluminum	7390		
Antimony	1	U	J
Arsenic	2.1		J
Barium	42.7		
Beryllium	0.25	B	
Cadmium	0.11	U	
Calcium	64700		
Chromium	11.5		
Cobalt	2.8	B	R
Copper	6.3		J
Iron	8000		
Lead	4.3		J
Magnesium	3390		
Manganese	194		
Mercury	0.018	U	
Nickel	5.6	B	
Potassium	893	B	
Selenium	1	U	
Silver	0.25	U	J
Sodium	268	B	
Thallium	1	U	
Vanadium	10.5		
Zinc	63		

Table 24.
Summary of Window Caulking and Paint Chip Sample Results - Cluster 6

Sample ID	TSCA	CDPCB10PC01		CDPCB10WC01		CDPCBSHEDWC01		CDPCBSHEDPC01	
Building No.	Regulatory	10		10		Shed		Shed	
Cluster No.	Limits	6		6		6		6	
Lab Sample No.		732665		732624		732061		732064	
Sampling Date		5/2/2006		4/27/2006		4/26/2006		4/26/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		100		20		5		1	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	3.3	U	0.66	U	0.16	U	0.033	U
Aroclor-1221	50	3.3	U	0.66	U	0.16	U	0.033	U
Aroclor-1232	50	3.3	U	0.66	U	0.16	U	0.033	U
Aroclor-1242	50	3.3	U	0.66	U	0.16	U	0.033	U
Aroclor-1248	50	3.3	U	6.1		1.6		0.46	
Aroclor-1254	50	120		25		3.3		1.1	
Aroclor-1260	50	3.3	U	0.66	U	0.16	U	0.033	U
Aroclor-1262	50	3.3	U	0.66	U	0.16	U	0.033	U
Aroclor-1268	50	3.3	U	0.66	U	0.16	U	0.033	U

Table 25.
Summary of Core Sample PCB Results - Cluster 6

Sample ID	TSCA	CD-COR-10-F-01		CD-COR-10A-F-01		CD-COR-10-F-02	
Building No.	Regulatory	10		10A		10	
Cluster No.	Limits	6		6		6	
Lab Sample No.		732351		730637		732350	
Sampling Date		4/27/2006		4/26/2006		4/27/2006	
Matrix		SOLID		SOLID		SOLID	
Dilution Factor		1		1		1	
Units	mg/kg	mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs							
Aroclor-1016	50	0.038	U	0.036	U	0.036	U
Aroclor-1221	50	0.038	U	0.036	U	0.036	U
Aroclor-1232	50	0.038	U	0.036	U	0.036	U
Aroclor-1242	50	0.038	U	0.036	U	0.036	U
Aroclor-1248	50	0.038	U	0.036	U	0.036	U
Aroclor-1254	50	1.1		0.34		0.77	
Aroclor-1260	50	0.038	U	0.036	U	0.036	U
Aroclor-1262	50	0.038	U	0.036	U	0.036	U
Aroclor-1268	50	0.038	U	0.036	U	0.036	U

Table 26.
Summary of Core Sample TCLP Results - Cluster 6

Sample ID	RCRA	CD-COR-10A-F-01		CD-COR-10-F-01		CD-COR-10-F-02	
Building No.	Regulatory	10		10			
Cluster No.	Limits	6		6			
Lab Sample No.		730637		732351		732350	
Sampling Date		4/26/2006		4/27/2006		4/27/2006	
Matrix		SOLID		SOLID		SOLID	
Dilution Factor							
Units	mg/l	mg/l		mg/l		mg/l	
TCLP METALS							
Arsenic	5	0.023	U	0.023	U	0.023	U
Barium	100	0.02	B	0.13	B	0.1	B
Cadmium	1	0.0025	U	0.05		0.0025	U
Chromium	5	0.014	U	0.014	U	0.014	U
Lead	5	0.011	U	0.13	B	0.011	U
Mercury	0.2	0.0001	U	0.0001	U	0.0001	U
Selenium	1	0.024	U	0.024	U	0.024	U
Silver	5	0.006	U	0.006	U	0.006	U

Table 27.
Summary of Core Sample TAL Metals Results - Cluster 6

Sample ID	CD-COR-10A-F-01			CD-COR-10-F-01			CD-COR-10-F-02		
Building No.	10A			10					
Cluster No.	6			6					
Lab Sample No.	730637			732351			732350		
Sampling Date	4/26/2006			4/27/2006			4/27/2006		
Matrix	SOLID			SOLID			SOLID		
Dilution Factor									
Units	mg/kg			mg/kg			mg/kg		
METALS									
Aluminum	7080		J	6500		J	5890		J
Antimony	1.1	U	J	1.3	U	J	1.3	U	J
Arsenic	1.3			0.73	U		1	B	
Barium	28	B	J	31.4	B		28.4	B	
Beryllium	0.21	B		0.25	B	R	0.23	B	R
Cadmium	0.11	U		4.6		J	0.09	B	J
Calcium	54000			67300		J	62900		J
Chromium	7		J	5.9			5.8		
Cobalt	3	B		3	B	R	4.6	B	R
Copper	15.1			11.3		J	16.7		J
Iron	8400		J	5440			9320		
Lead	5.4		J	75.9		J	2.2		J
Magnesium	3460		J	3310		J	4360		J
Manganese	109		J	124		J	142		J
Mercury	0.018	U	J	0.016	U		0.018	U	
Nickel	8.4	B	J	5.8	B	J	4.8	B	J
Potassium	239	B		1040	B		359	B	
Selenium	1.1	U	J	0.96	U	J	0.92	U	J
Silver	0.27	U		0.32	U		0.31	U	
Sodium	232	B		737	B		216	B	
Thallium	1.1	U		1.1	U		1	U	
Vanadium	12.6			9.1	B		16.4		
Zinc	8.6			25		RJ	25.4		RJ

Table 28.
Summary of Window Caulking and Paint Chip Sample Results - Cluster 7

Sample ID	TSCA	CDPCB11PC01		CDPCB11WC01		CDPCB11WC02		CDPCB12PC01		CDPCB12WC01	
Building No.	Regulatory	11		11		11		12		12	
Cluster No.	Limits	7		7		7		7		7	
Lab Sample No.		732661		732643		732644		729573		729575	
Sampling Date		5/2/2006		5/2/2006		5/2/2006		4/21/2006		4/21/2006	
Matrix		SOLID		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		100		50		10		100		20	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs											
Aroclor-1016	50	3.3	U	1.6	U	0.33	U	3.3	U	0.66	U
Aroclor-1221	50	3.3	U	1.6	U	0.33	U	3.3	U	0.66	U
Aroclor-1232	50	3.3	U	1.6	U	0.33	U	3.3	U	0.66	U
Aroclor-1242	50	3.3	U	1.6	U	0.33	U	3.3	U	0.66	U
Aroclor-1248	50	74		17	J	8.3	J	3.3	U	0.66	U
Aroclor-1254	50	140		27	J	9.8	J	75		13	
Aroclor-1260	50	3.3	U	1.6	U	0.33	U	3.3	U	0.66	U
Aroclor-1262	50	3.3	U	1.6	U	0.33	U	3.3	U	0.66	U
Aroclor-1268	50	3.3	U	1.6	U	0.33	U	3.3	U	0.66	U

Table 29.
Summary of Core Sample PCB Results - Cluster 7

Sample ID	TSCA	CD-COR-11-F-02		CD-COR-11-F-01		CD-COR-12-F-02		CD-COR-12-F-01	
Building No.	Regulatory	11		11		12		12	
Cluster No.	Limits	7		7		7		7	
Lab Sample No.		730195		730196		730193		730194	
Sampling Date		4/24/2006		4/24/2006		4/24/2006		4/24/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		5		50		500		500	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	0.18	U	1.7	U	17	U	18	U
Aroclor-1221	50	0.18	U	1.7	U	17	U	18	U
Aroclor-1232	50	0.18	U	1.7	U	17	U	18	U
Aroclor-1242	50	0.18	U	1.7	U	17	U	18	U
Aroclor-1248	50	0.79		29		17	U	18	U
Aroclor-1254	50	3.3		44		320		610	
Aroclor-1260	50	0.18	U	1.7	U	17	U	18	U
Aroclor-1262	50	0.18	U	1.7	U	17	U	18	U
Aroclor-1268	50	0.18	U	1.7	U	17	U	18	U

Table 30.
Summary of Core Sample TCLP Results - Cluster 7

Sample ID	RCRA	CD-COR-11-F-02		CD-COR-11-F-01		CD-COR-12-F-02		CD-COR-12-F-01	
Building No.	Regulatory	11		11		12		12	
Cluster No.	Limits	7		7		7		7	
Lab Sample No.		730195		730196		730193		730194	
Sampling Date		4/24/2006		4/24/2006		4/24/2006		4/24/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor									
Units	mg/l	mg/l		mg/l		mg/l		mg/l	
TCLP METALS									
Arsenic	5	0.023	U	0.023	U	0.023	U	0.023	U
Barium	100	0.06	B	0.09	B	0.22	B	0.19	B
Cadmium	1	0.0025	U	0.0025	U	0.0025	U	0.0025	U
Chromium	5	0.014	U	0.014	U	0.014	U	0.014	U
Lead	5	0.011	U	0.011	U	0.03	B	0.011	U
Mercury	0.2	0.0001	U	0.0001	U	0.0001	U	0.0001	U
Selenium	1	0.024	U	0.024	U	0.024	U	0.024	U
Silver	5	0.006	U	0.006	U	0.006	U	0.006	U

Table 31.
Summary of Core Sample TAL Metals Results - Cluster 7

Sample ID	CD-COR-11-F-02			CD-COR-11-F-01			CD-COR-12-F-02			CD-COR-12-F-01		
Building No.	11			11			12			12		
Cluster No.	7			7			7			7		
Lab Sample No.	730195			730196			730193			730194		
Sampling Date	4/24/2006			4/24/2006			4/24/2006			4/24/2006		
Matrix	SOLID			SOLID			SOLID			SOLID		
Dilution Factor												
Units	mg/kg			mg/kg			mg/kg			mg/kg		
METALS												
Aluminum	8380			3000			8400			7740		
Antimony	1.3	U	J	1.2	U	J	2.8		J	187		J
Arsenic	1.1	B	J	1.6		J	17.1		J	154		J
Barium	73.4			32.2	B		365			69.3		
Beryllium	0.39	B		0.21	B		0.68			0.3	B	
Cadmium	0.087	U		0.13	B		8.1			6.2		
Calcium	46000			24900			17900			30200		
Chromium	11.5			5.2			36.9			7.6		
Cobalt	5.8	B	R	5	B	R	14.2			5.9	B	R
Copper	18.2			13.6			420			195900		
Iron	13400			4210			98500			11700		
Lead	10.1			8.3			350			6280		
Magnesium	3390			1110			3270			3330		
Manganese	1900			87.4			894			184		
Mercury	0.018	U		0.018	U		0.04		J	0.018	U	
Nickel	8.8			7.5	B		47.3			189		
Potassium	415	B		390	B		1740			582	B	
Selenium	0.92	U		0.89	U		3.2			2.4		
Silver	0.31	U		0.3	U		82.1			32.1		
Sodium	236	B		199	B		989	B		246	B	
Thallium	1	U		0.99	U		0.99	U		1	U	
Vanadium	20			6.9	B		38.6			12.2		
Zinc	35.1			33.8			531			4970		

Table 32.
Summary of Window Caulking and Paint Chip Sample Results - Cluster 8

Sample ID	TSCA	CDPCB13WC01		CDPCB13PC01		CDPCB15PC01		CDPCB16PC01	
Building No.	Regulatory	13		13		15		16	
Cluster No.	Limits	8		8		8		8	
Lab Sample No.		732059		732063		732660		732649	
Sampling Date		4/26/2006		4/26/2006		5/2/2006		5/2/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		2		2		50		25	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	0.066	U	0.066	U	1.6	U	0.82	U
Aroclor-1221	50	0.066	U	0.066	U	1.6	U	0.82	U
Aroclor-1232	50	0.066	U	0.066	U	1.6	U	0.82	U
Aroclor-1242	50	0.066	U	0.066	U	1.6	U	0.82	U
Aroclor-1248	50	0.066	U	0.066	U	9.8		0.82	U
Aroclor-1254	50	1.5		1.9		48		33	
Aroclor-1260	50	0.066	U	0.066	U	1.6	U	0.82	U
Aroclor-1262	50	0.066	U	0.066	U	1.6	U	0.82	U
Aroclor-1268	50	0.066	U	0.066	U	1.6	U	0.82	U

Table 32.
Summary of Window Caulking and Paint Chip Sample Results - Cluster 8

Sample ID	CDPCB16WC01			CDPCB17PC01		
Building No.	16			17		
Cluster No.	8			8		
Lab Sample No.	732646			732058		
Sampling Date	5/2/2006			4/25/2006		
Matrix	SOLID			SOLID		
Dilution Factor	20			10		
Units	mg/kg			mg/kg		
PESTICIDES/PCBs						
Aroclor-1016	0.66	U		0.33	U	
Aroclor-1221	0.66	U		0.33	U	
Aroclor-1232	0.66	U		0.33	U	
Aroclor-1242	0.66	U		0.33	U	
Aroclor-1248	0.66	U		0.33	U	
Aroclor-1254	17			5.4		
Aroclor-1260	0.66	U		0.33	U	
Aroclor-1262	0.66	U		0.33	U	
Aroclor-1268	0.66	U		0.33	U	

Table 33.
Summary of Core Sample PCB Results - Cluster 8

Sample ID	TSCA	CD-COR-13-F-01		CD-COR-13-F-02		CD-COR-13-W-03		CD-COR-13-W-04	
Building No.	Regulatory	13		13		13		13	
Cluster No.	Limits	8		8		8		8	
Lab Sample No.		730626		730627		730628		730629	
Sampling Date		4/26/2006		4/26/2006		4/26/2006		4/26/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		5		2		1		2	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	0.18	U	0.068	U	0.034	U	0.073	U
Aroclor-1221	50	0.18	U	0.068	U	0.034	U	0.073	U
Aroclor-1232	50	0.18	U	0.068	U	0.034	U	0.073	U
Aroclor-1242	50	0.18	U	0.068	U	0.034	U	0.073	U
Aroclor-1248	50	0.18	U	0.068	U	0.034	U	0.073	U
Aroclor-1254	50	3.4		1.6		0.15		1.9	
Aroclor-1260	50	0.18	U	0.068	U	0.034	U	0.073	U
Aroclor-1262	50	0.18	U	0.068	U	0.034	U	0.073	U
Aroclor-1268	50	0.18	U	0.068	U	0.034	U	0.073	U

Table 33.
Summary of Core Sample PCB Results - Cluster 8

Sample ID	TSCA	CD-COR-15-F-01		CD-COR-15-F-02		CD-COR-15-W-03		CD-COR-15-W-04	
Building No.	Regulatory	15		15		15		15	
Cluster No.	Limits	8		8		8		8	
Lab Sample No.		728367		728366		732650		732652	
Sampling Date		4/20/2006		4/20/2006		5/1/2006		5/1/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		1		1		1		5	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	0.034	U	0.034	U	0.033	U	0.16	U
Aroclor-1221	50	0.034	U	0.034	U	0.033	U	0.16	U
Aroclor-1232	50	0.034	U	0.034	U	0.033	U	0.16	U
Aroclor-1242	50	0.034	U	0.034	U	0.033	U	0.16	U
Aroclor-1248	50	0.034	U	0.034	U	0.033	U	1.3	
Aroclor-1254	50	0.16		0.28		0.28		5.3	
Aroclor-1260	50	0.034	U	0.034	U	0.033	U	0.16	U
Aroclor-1262	50	0.034	U	0.034	U	0.033	U	0.16	U
Aroclor-1268	50	0.034	U	0.034	U	0.033	U	0.16	U

Table 33.
Summary of Core Sample PCB Results - Cluster 8

Sample ID	TSCA	CD-COR-15-DUP		CD-COR-16-F-01		CD-COR-16-F-02		CD-COR-16-W-03	
Building No.	Regulatory	15		16		16		16	
Cluster No.	Limits	8		8		8		8	
Lab Sample No.		732651		728372		728371		728370	
Sampling Date		5/1/2006		4/20/2006		4/20/2006		4/20/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		1		2		20		1	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	0.033	U	0.07	U	0.7	U	0.035	U
Aroclor-1221	50	0.033	U	0.07	U	0.7	U	0.035	U
Aroclor-1232	50	0.033	U	0.07	U	0.7	U	0.035	U
Aroclor-1242	50	0.033	U	0.07	U	0.7	U	0.035	U
Aroclor-1248	50	0.033	U	0.07	U	0.7	U	0.035	U
Aroclor-1254	50	0.24		1.7		11		0.035	U
Aroclor-1260	50	0.033	U	0.07	U	0.7	U	0.035	U
Aroclor-1262	50	0.033	U	0.07	U	0.7	U	0.035	U
Aroclor-1268	50	0.033	U	0.07	U	0.7	U	0.035	U

Table 33.
Summary of Core Sample PCB Results - Cluster 8

Sample ID	TSCA	CD-COR-16-W-04		CD-COR-17-F-01		CD-COR-18-F-01		CD-COR-18-F-02	
Building No.	Regulatory	16		17		18		18	
Cluster No.	Limits	8		8		8		8	
Lab Sample No.		728373		730634		728369		728368	
Sampling Date		4/20/2006		4/26/2006		4/20/2006		4/20/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor		1		10		1		10	
Units	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES/PCBs									
Aroclor-1016	50	0.037	U	0.35	U	0.034	U	0.36	U
Aroclor-1221	50	0.037	U	0.35	U	0.034	U	0.36	U
Aroclor-1232	50	0.037	U	0.35	U	0.034	U	0.36	U
Aroclor-1242	50	0.037	U	0.35	U	0.034	U	0.36	U
Aroclor-1248	50	0.037	U	0.35	U	0.034	U	0.36	U
Aroclor-1254	50	0.037	U	13		0.034	U	9.6	
Aroclor-1260	50	0.037	U	0.35	U	0.034	U	0.36	U
Aroclor-1262	50	0.037	U	0.35	U	0.034	U	0.36	U
Aroclor-1268	50	0.037	U	0.35	U	0.034	U	0.36	U

Table 33.
Summary of Core Sample PCB Results - Cluster 8

Sample ID	TSCA	CD_COR_18_W_03		CD_COR_18_W_04	
Building No.	Regulatory	18		18	
Cluster No.	Limits	8		8	
Lab Sample No.		731968		731969	
Sampling Date		4/28/2006		4/28/2006	
Matrix		SOLID		SOLID	
Dilution Factor		2		2	
Units	mg/kg	mg/kg		mg/kg	
PESTICIDES/PCBs					
Aroclor-1016	50	0.066	U	0.066	U
Aroclor-1221	50	0.066	U	0.066	U
Aroclor-1232	50	0.066	U	0.066	U
Aroclor-1242	50	0.066	U	0.066	U
Aroclor-1248	50	1.1		0.066	U
Aroclor-1254	50	1.6		1.1	
Aroclor-1260	50	0.066	U	0.066	U
Aroclor-1262	50	0.066	U	0.066	U
Aroclor-1268	50	0.066	U	0.066	U

Table 34.
Summary of Core Sample TCLP Results - Cluster 8

Sample ID	RCRA	CD-COR-13-F-01		CD-COR-13-F-02		CD-COR-13-W-03		CD-COR-13-W-04	
Building No.	Regulatory	13		13		13		13	
Cluster No.	Limits	8		8		8		8	
Lab Sample No.		730626		730627		730628		730629	
Sampling Date		4/26/2006		4/26/2006		4/26/2006		4/26/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor									
Units	mg/l	mg/l		mg/l		mg/l		mg/l	
TCLP METALS									
Arsenic	5	0.023	U	0.023	U	0.023	U	0.023	U
Barium	100	0.55	B	0.33	B	0.27	B	0.6	B
Cadmium	1	0.008	B	0.007	B	0.0025	U	0.0025	U
Chromium	5	0.014	U	0.014	U	0.02	B	0.02	B
Lead	5	0.02	B	0.08	B	0.011	U	10.6	
Mercury	0.2	0.0001	U	0.0001	U	0.0001	U	0.0001	U
Selenium	1	0.024	U	0.024	U	0.024	U	0.024	U
Silver	5	0.006	U	0.006	U	0.006	U	0.006	U

Table 34.
Summary of Core Sample TCLP Results - Cluster 8

Sample ID	RCRA	CD-COR-15-F-01		CD-COR-15-F-02		CD-COR-15-W-03		CD-COR-15-W-04	
Building No.	Regulatory	15		15		15		15	
Cluster No.	Limits	8		8		8		8	
Lab Sample No.		728367		728366		732650		732652	
Sampling Date		4/20/2006		4/20/2006		5/1/2006		5/1/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor									
Units	mg/l	mg/l		mg/l		mg/l		mg/l	
TCLP METALS									
Arsenic	5	0.024	U	0.024	U	0.023	U	0.023	U
Barium	100	0.15	B	0.11	B	0.29	B	0.26	B
Cadmium	1	0.003	U	0.003	U	0.004	B	0.0025	U
Chromium	5	0.02	B	0.015	U	0.014	U	0.04	B
Lead	5	0.013	U	0.013	U	9.3	J	3.2	
Mercury	0.2	0.0003		0.0001	U	0.0001	B	0.0001	U
Selenium	1	0.025	U	0.025	U	0.024	U	0.024	U
Silver	5	0.013	U	0.013	U	0.006	U	0.006	U

Table 34.
Summary of Core Sample TCLP Results - Cluster 8

Sample ID	RCRA	CD-COR-15-DUP		CD-COR-16-W-03		CD-COR-16-F-02		CD-COR-16-F-01	
Building No.	Regulatory	15		16		16		16	
Cluster No.	Limits	8		8		8		8	
Lab Sample No.		732651		728370		728371		728372	
Sampling Date		5/1/2006		4/20/2006		4/20/2006		4/20/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor									
Units	mg/l	mg/l		mg/l		mg/l		mg/l	
TCLP METALS									
Arsenic	5	0.023	U	0.024	U	0.024	U	0.024	U
Barium	100	0.19	B	0.32	B	0.04	B	0.1	B
Cadmium	1	0.0025	U	0.003	U	0.003	U	0.003	U
Chromium	5	0.014	U	0.89		0.015	U	0.015	U
Lead	5	1.6	J	0.013	U	0.013	U	0.013	U
Mercury	0.2	0.0001	U	0.0001	U	0.0001	U	0.0001	U
Selenium	1	0.024	U	0.025	U	0.025	U	0.025	U
Silver	5	0.006	U	0.013	U	0.013	U	0.013	U

Table 34.
Summary of Core Sample TCLP Results - Cluster 8

Sample ID	RCRA	CD-COR-16-W-04		CD-COR-17-F-01		CD-COR-18-F-02		CD-COR-18-F-01	
Building No.	Regulatory	16		17		18		18	
Cluster No.	Limits	8		8		8		8	
Lab Sample No.		728373		730634		728368		728369	
Sampling Date		4/20/2006		4/26/2006		4/20/2006		4/20/2006	
Matrix		SOLID		SOLID		SOLID		SOLID	
Dilution Factor									
Units	mg/l	mg/l		mg/l		mg/l		mg/l	
TCLP METALS									
Arsenic	5	0.024	U	0.023	U	0.024	U	0.024	U
Barium	100	0.21	B	0.09	B	0.08	B	0.1	B
Cadmium	1	0.003	U	0.0025	U	0.003	U	0.003	U
Chromium	5	0.015	U	0.014	U	0.015	U	0.015	U
Lead	5	0.013	U	0.011	U	0.013	U	0.013	U
Mercury	0.2	0.0001	U	0.0001	U	0.0001	U	0.0001	B
Selenium	1	0.025	U	0.024	U	0.025	U	0.025	U
Silver	5	0.013	U	0.006	U	0.013	U	0.013	U

Table 34.
Summary of Core Sample TCLP Results - Cluster 8

Sample ID	RCRA	CD_COR_18_W_03		CD_COR_18_W_04		
Building No.	Regulatory	18		18		
Cluster No.	Limits	8		8		
Lab Sample No.		731968		731969		
Sampling Date		4/28/2006		4/28/2006		
Matrix		SOLID		SOLID		
Dilution Factor						
Units	mg/l	mg/l		mg/l		
TCLP METALS						
Arsenic	5	0.023	U	0.023	U	
Barium	100	0.12	B	0.25	B	
Cadmium	1	0.0025	U	0.0025	U	
Chromium	5	0.014	U	0.014	U	
Lead	5	0.011	U	0.011	U	
Mercury	0.2	0.0001	U	0.0001	U	
Selenium	1	0.024	U	0.024	U	
Silver	5	0.006	U	0.006	U	

Table 35.
Summary of Core Sample TAL Metals Results - Cluster 8

Sample ID	CD-COR-13-F-01			CD-COR-13-F-02			CD-COR-13-W-03			CD-COR-13-W-04		
Building No.	13			13			13			13		
Cluster No.	8			8			8			8		
Lab Sample No.	730626			730627			730628			730629		
Sampling Date	4/26/2006			4/26/2006			4/26/2006			4/26/2006		
Matrix	SOLID			SOLID			SOLID			SOLID		
Dilution Factor												
Units	mg/kg			mg/kg			mg/kg			mg/kg		
METALS												
Aluminum	5960			7310			3680			7420		
Antimony	1	U	J	1	U	J	1	U	J	1.1	U	J
Arsenic	0.96	U		1.1			0.93	U		0.99	U	
Barium	31.8	B	J	36.4	B	J	30	B	J	208		J
Beryllium	0.17	B		0.22	B		0.21	B		0.2	B	
Cadmium	0.11	U		0.19	B		0.1	U		0.11	U	
Calcium	85300			96400			41000			73300		
Chromium	12.1			14.5			6.7			13.2		
Cobalt	2.5	B	R	2.3	B	R	1.7	B	R	4.3	B	
Copper	80.7			33.6			16			6.9		
Iron	4840			6760			5220			4960		
Lead	14			10.2			4.3			7910		
Magnesium	3850			3980			1920			3040		
Manganese	113			170			122			127		
Mercury	0.03	B	J	0.017	U	J	0.017	U	J	0.04		J
Nickel	9.4		J	6.3	B	J	3.9	B	J	5.2	B	J
Potassium	295	B		342	B		419	B		509	B	
Selenium	1	U	J	0.99	U	J	0.99	U	J	1.1	U	J
Silver	0.26	U		0.25	U		0.25	U		0.26	U	
Sodium	410	B		337	B		236	B		483	B	
Thallium	1	U		0.99	U		0.99	U		1.1	U	
Vanadium	7.9	B		14.4			6.5	B		10.2	B	
Zinc	28.6			16.3			63.2			100		

Table 35.
Summary of Core Sample TAL Metals Results - Cluster 8

Sample ID	CD-COR-15-F-01			CD-COR-15-F-02			CD-COR-15-W-03			CD-COR-15-W-04		
Building No.	13			15			15			15		
Cluster No.	8			8			8			8		
Lab Sample No.	728367			728366			732650			732652		
Sampling Date	4/20/2006			4/20/2006			5/1/2006			5/1/2006		
Matrix	SOLID			SOLID			SOLID			SOLID		
Dilution Factor												
Units	mg/kg			mg/kg			mg/kg			mg/kg		
METALS												
Aluminum	6800			6490			246			583		
Antimony	1	U	J	1	U	J	1.2	U	J	1.7	B	J
Arsenic	1.7		J	1.7		J	0.64	U		1.6		
Barium	48.8			42.9			7.1	B		1030		
Beryllium	0.24	B	J	0.23	B	J	0.06	U		0.06	U	
Cadmium	0.1	U	J	0.11	B	J	0.08	U		0.11	B	
Calcium	98400		J	76200		J	229	B		1580		
Chromium	6.5		J	59.3		J	2			68		
Cobalt	2.8	B	RJ	15.9		RJ	0.54	B	J	5.7	B	R
Copper	7.9		RJ	29.1		J	1.8	B	RJ	14.6		J
Iron	7630		J	7120		J	1700			10600		
Lead	10.8		J	8.8		J	14.3		J	1850		J
Magnesium	3920		J	3390		J	69.8	B		266	B	
Manganese	83.7		J	92.5		J	18.8			91.3		
Mercury	0.02	B	J	0.03	B		0.4			0.11		
Nickel	5.6	B	RJ	11.1		J	0.69	B		8.5		
Potassium	1050			460	B		192	B		599	B	
Selenium	0.98	U		0.98	U	J	0.84	U		0.84	U	
Silver	0.25	U		0.25	U		0.28	U		0.28	U	
Sodium	743	B		329	B	R	79.3	U		147	B	
Thallium	0.98	U		0.98	U		0.94	U		0.94	U	
Vanadium	8.9	B	J	12.7		J	1.4	B		2.6	B	
Zinc	21.8		RJ	14.8		RJ	12.5		R	193		

Table 35.
Summary of Core Sample TAL Metals Results - Cluster 8

Sample ID	CD-COR-15-DUP			CD-COR-16-W-03			CD-COR-16-F-02			CD-COR-16-F-01		
Building No.	15			16			16			16		
Cluster No.	8			8			8			8		
Lab Sample No.	732651			728370			728371			728372		
Sampling Date	5/1/2006			4/20/2006			4/20/2006			4/20/2006		
Matrix	SOLID			SOLID			SOLID			SOLID		
Dilution Factor												
Units	mg/kg			mg/kg			mg/kg			mg/kg		
METALS												
Aluminum	342			9300			7420			5330		
Antimony	1.2	U	J	1.1	U	J	1	U	J	0.87	U	J
Arsenic	0.64	U		1.3		J	4.3		J	1.5		J
Barium	21.1	B		55.5			47.9			3230		
Beryllium	0.06	U		0.19	B	J	0.26	B	J	0.2	B	J
Cadmium	0.08	U		0.17	B	J	0.32	B	J	0.36	B	J
Calcium	225	B		42500		J	56900		J	60600		J
Chromium	2.7			46.5		J	8.4		J	5.8		J
Cobalt	0.49	B	R	11.1		RJ	7.2	B	RJ	10.9		RJ
Copper	2.7	B	JR	25.1		J	14.2		RJ	12.7		RJ
Iron	2180			16200		J	8120		J	3540		J
Lead	43		J	2.4		RJ	11.7		J	133		J
Magnesium	80.1	B		7080		J	3480		J	5820		J
Manganese	21			345			148		J	240		J
Mercury	0.66			0.015	U		0.03	B		0.015	U	
Nickel	1.2	B		17.1		J	10.3		J	4.1	B	RJ
Potassium	141	B		1490			983	B		587	B	
Selenium	0.84	U		1.1		J	1	U	J	0.85	U	J
Silver	0.28	U		0.26	U		0.26	U		0.21	U	
Sodium	79.3	U		657	B		824	B		298	B	R
Thallium	0.94	U		1	U		1	U		0.85	U	
Vanadium	1.7	B		48.4		J	18.3		J	10.7		J
Zinc	10.6		R	34.8		RJ	23.3		RJ	107		RJ

Table 35.
Summary of Core Sample TAL Metals Results - Cluster 8

Sample ID	CD-COR-16-W-04			CD-COR-17-F-01			CD-COR-18-F-02			CD-COR-18-F-01		
Building No.	16			17			18			18		
Cluster No.	8			8			8			8		
Lab Sample No.	728373			730634			728368			728369		
Sampling Date	4/20/2006			4/26/2006			4/20/2006			4/20/2006		
Matrix	SOLID			SOLID			SOLID			SOLID		
Dilution Factor												
Units	mg/kg			mg/kg			mg/kg			mg/kg		
METALS												
Aluminum	11400			8690		J	10400			9530		
Antimony	1.1	U	J	1.1	U	J	1.1	U	J	0.93	U	J
Arsenic	1.8		J	3.8			2.6		J	2		J
Barium	67.5			37.1	B	J	47.8			47.9		
Beryllium	0.37	B	J	0.34	B		0.33	B	J	0.57		J
Cadmium	0.11	U	J	0.2	B		0.69	B	J	0.095	U	J
Calcium	120400		J	61300			90900		J	35800		J
Chromium	12.8		J	15		J	17.9		J	35.8		J
Cobalt	4.6	B	RJ	7.7	B		14		RJ	8.4	B	RJ
Copper	5.2	B	RJ	13.7			22.2		RJ	5.6		RJ
Iron	6830		J	11600		J	15200		J	13400		J
Lead	1.7		RJ	18.5		J	8.4		J	6.8		RJ
Magnesium	4680		J	4360		J	5080		J	4110		J
Manganese	177		J	151		J	190		J	340		J
Mercury	0.019	U		0.04		J	0.018	U		0.017	U	
Nickel	8.1	B	J	11.2		J	13.9		J	15.4		J
Potassium	106	B	R	1110			537	B		1010		
Selenium	1.1	U	J	1	U	J	1	U		0.91	U	J
Silver	0.27	U		0.26	U		0.29	B		0.23	U	
Sodium	96.1	B	R	547	B		697	B		226	B	R
Thallium	1.1	U		1	U		1	U		0.91	U	
Vanadium	15		J	26.9			20.4		J	20.2		J
Zinc	10.3		RJ	59.1			48.4		RJ	30.8		RJ

Table 35.
Summary of Core Sample TAL Metals Results - Cluster 8

Sample ID	CD_COR_18_W_03			CD_COR_18_W_04		
Building No.	18			18		
Cluster No.	8			8		
Lab Sample No.	731968			731969		
Sampling Date	4/28/2006			4/28/2006		
Matrix	SOLID			SOLID		
Dilution Factor						
Units	mg/kg			mg/kg		
METALS						
Aluminum	12100			11000		
Antimony	2.2		J	1.1	U	J
Arsenic	0.92	U		1.9		
Barium	123			77		
Beryllium	0.94			0.75		
Cadmium	0.1	U		0.11	U	
Calcium	74300			69000		
Chromium	8.5		J	9.4		J
Cobalt	3	B	R	4.7	B	R
Copper	9.4			10.7		
Iron	9170			9300		
Lead	107			4.5		
Magnesium	10200			8260		
Manganese	440		J	425		J
Mercury	0.2		R	0.13		R
Nickel	7	B		8.2	B	
Potassium	1880			1910		
Selenium	0.98	U		1	U	
Silver	0.24	U		0.26	U	
Sodium	1740			5530		
Thallium	0.98	U		1	U	
Vanadium	12.9			13.3		
Zinc	45.5			119		

Table 36.
Summary of Window Caulking and Paint Chip Sample Results - Cluster 9

Sample ID	TSCA	CDPCB07WC01		
Building No.	Regulatory	7		
Cluster No.	Limits	9		
Lab Sample No.		732060		
Sampling Date		4/26/2006		
Matrix		SOLID		
Dilution Factor		2		
Units	mg/kg	mg/kg		
PESTICIDES/PCBs				
Aroclor-1016	50	0.066	U	
Aroclor-1221	50	0.066	U	
Aroclor-1232	50	0.066	U	
Aroclor-1242	50	0.066	U	
Aroclor-1248	50	0.066	U	
Aroclor-1254	50	2.6		
Aroclor-1260	50	0.066	U	
Aroclor-1262	50	0.066	U	
Aroclor-1268	50	0.066	U	

Table 37.
Summary of Core Sample PCB Results - Cluster 9

Sample ID	TSCA	CD-COR-7-F-01		CD-COR-7-F-02	
Building No.	Regulatory	7		7	
Cluster No.	Limits	9		9	
Lab Sample No.		730635		730636	
Sampling Date		4/26/2006		4/26/2006	
Matrix		SOLID		SOLID	
Dilution Factor		10		20	
Units	mg/kg	mg/kg		mg/kg	
PESTICIDES/PCBs					
Aroclor-1016	50	0.34	U	0.73	U
Aroclor-1221	50	0.34	U	0.73	U
Aroclor-1232	50	0.34	U	0.73	U
Aroclor-1242	50	0.34	U	0.73	U
Aroclor-1248	50	0.34	U	0.73	U
Aroclor-1254	50	6		25	
Aroclor-1260	50	0.34	U	0.73	U
Aroclor-1262	50	0.34	U	0.73	U
Aroclor-1268	50	0.34	U	0.73	U

Table 38.
Summary of Core Sample TCLP Results - Cluster 9

Sample ID	RCRA	CD-COR-7-F-01			CD-COR-7-F-02		
Building No.	Regulatory	7			7		
Cluster No.	Limits	9			9		
Lab Sample No.		730635			730636		
Sampling Date		4/26/2006 0:00			4/26/2006 0:00		
Matrix		SOLID			SOLID		
Dilution Factor							
Units	mg/l	mg/l			mg/l		
TCLP METALS							
Arsenic	5	0.023	U		0.023	U	
Barium	100	0.56	B		0.59	B	
Cadmium	1	0.0025	U		0.0025	U	
Chromium	5	0.014	U		0.014	U	
Lead	5	0.011	U		0.011	U	
Mercury	0.2	0.0002	B		0.0001	U	
Selenium	1	0.024	U		0.024	U	
Silver	5	0.006	U		0.006	U	

Table 39.
Summary of Core Sample TAL Metals Results - Cluster 9

Sample ID	CD-COR-7-F-01			CD-COR-7-F-02		
Building No.	7			7		
Cluster No.	9			9		
Lab Sample No.	730635			730636		
Sampling Date	4/26/2006			4/26/2006		
Matrix	SOLID			SOLID		
Dilution Factor						
Units	mg/kg			mg/kg		
METALS						
Aluminum	7530		J	7780		J
Antimony	1	U	J	1.1	U	J
Arsenic	3.3			3.1		
Barium	40.7	B	J	87.5		J
Beryllium	0.2	B		0.26	B	
Cadmium	0.1	U		0.11	U	
Calcium	70800			79700		
Chromium	8.4		J	14.3		J
Cobalt	2.1	B	R	3.8	B	
Copper	5.2			10.8		
Iron	5740		J	13500		J
Lead	4.2		J	15.3		J
Magnesium	3000		J	3680		J
Manganese	108		J	167		J
Mercury	0.22		J	0.02	B	J
Nickel	5	B	J	9.2		J
Potassium	131	B		339	B	
Selenium	1	B	J	1.1	U	J
Silver	0.25	U		0.26	U	
Sodium	101	B		341	B	
Thallium	1	U		1.1	U	
Vanadium	9.2	B		12.3		
Zinc	11.3			27.3		

Table 40.
Summary of Window Caulking and Paint Chip Sample Results - Cluster 10

Sample ID	TSCA	CDPCBWTPC01		
Building No.	Regulatory	Water Tower		
Cluster No.	Limits	10		
Lab Sample No.		728670		
Sampling Date		4/20/2006		
Matrix		SOLID		
Dilution Factor		10		
Units	mg/kg	mg/kg		
PESTICIDES/PCBs				
Aroclor-1016	50	0.33	U	
Aroclor-1221	50	0.33	U	
Aroclor-1232	50	0.33	U	
Aroclor-1242	50	0.33	U	
Aroclor-1248	50	0.33	U	
Aroclor-1254	50	13		
Aroclor-1260	50	0.33	U	
Aroclor-1262	50	0.33	U	
Aroclor-1268	50	0.33	U	

Table 41.
Summary of Window Caulking and Paint Chip Sample Results - Cluster 11

Sample ID	TSCA	CDPCB14PC01		CDPCB14WC01		
Building No.	Regulatory	14		14		
Cluster No.	Limits	11		11		
Lab Sample No.		728665		729576		
Sampling Date		4/19/2006		4/21/2006		
Matrix		SOLID		SOLID		
Dilution Factor		5		10		
Units	mg/kg	mg/kg		mg/kg		
PESTICIDES/PCBs						
Aroclor-1016	50	0.16	U	0.33	U	
Aroclor-1221	50	0.16	U	0.33	U	
Aroclor-1232	50	0.16	U	0.33	U	
Aroclor-1242	50	0.16	U	0.33	U	
Aroclor-1248	50	0.16	U	2.8		
Aroclor-1254	50	6.1		6.2		
Aroclor-1260	50	0.16	U	0.33	U	
Aroclor-1262	50	0.16	U	0.33	U	
Aroclor-1268	50	0.16	U	0.33	U	

Table 42.
Summary of Core Sample PCB Results - Cluster 11

Sample ID	TSCA	CD-COR-14-F-01		CD-COR-14-F-02	
Building No.	Regulatory	14		14	
Cluster No.	Limits	11		11	
Lab Sample No.		728364		728365	
Sampling Date		4/20/2006		4/20/2006	
Matrix		SOLID		SOLID	
Dilution Factor		1		5	
Units	mg/kg	mg/kg		mg/kg	
PESTICIDES/PCBs					
Aroclor-1016	50	0.034	U	0.17	U
Aroclor-1221	50	0.034	U	0.17	U
Aroclor-1232	50	0.034	U	0.17	U
Aroclor-1242	50	0.034	U	0.17	U
Aroclor-1248	50	0.034	U	0.17	U
Aroclor-1254	50	0.1		2.5	
Aroclor-1260	50	0.034	U	0.17	U
Aroclor-1262	50	0.034	U	0.17	U
Aroclor-1268	50	0.034	U	0.17	U

Table 43.
Summary of Core Sample TCLP Results - Cluster 11

Sample ID	RCRA	CD-COR-14-F-01		CD-COR-14-F-02		
Building No.	Regulatory	14		14		
Cluster No.	Limits	11		11		
Lab Sample No.		728364		728365		
Sampling Date		4/20/2006		4/20/2006		
Matrix		SOLID		SOLID		
Dilution Factor						
Units	mg/l	mg/l		mg/l		
TCLP METALS						
Arsenic	5	0.024	U	0.024	U	
Barium	100	0.0075	U	0.47	B	
Cadmium	1	0.003	U	0.003	U	
Chromium	5	0.015	U	0.015	U	
Lead	5	0.013	U	0.02	B	
Mercury	0.2	0.0001	B	0.0001	U	
Selenium	1	0.025	U	0.025	U	
Silver	5	0.013	U	0.013	U	

Table 44.
Summary of Core Sample TAL Metals Results - Cluster 11

Sample ID	CD-COR-14-F-01			CD-COR-14-F-02		
Building No.	14			14		
Cluster No.	11			11		
Lab Sample No.	728364			728365		
Sampling Date	4/20/2006			4/20/2006		
Matrix	SOLID			SOLID		
Dilution Factor						
Units	mg/kg			mg/kg		
METALS						
Aluminum	419			7860		
Antimony	1	U	J	1	U	J
Arsenic	0.93	U	J	6.6		J
Barium	6.4	B	R	69.1		
Beryllium	0.021	U	J	0.63		J
Cadmium	0.1	U	J	2.8		J
Calcium	2940		J	62800		
Chromium	0.68	B	RJ	75.9		J
Cobalt	48.6		RJ	87		RJ
Copper	7.5		RJ	85.1		J
Iron	1100		RJ	57600		J
Lead	2.3		RJ	43		J
Magnesium	153	B	J	2740		J
Manganese	13.3		RJ	250		J
Mercury	0.017	U		0.03	B	
Nickel	16.1		J	83.2		J
Potassium	123	B	R	1780		
Selenium	0.99	U		2.4		J
Silver	0.25	U		0.35	B	
Sodium	92.7	B	R	2210		
Thallium	0.99	U		1	U	
Vanadium	0.95	B	J	61.5		J
Zinc	7.3		RJ	153		RJ

Table 45.
Summary of Window Caulking and Paint Chip Sample Results - Cluster 12

Sample ID	TSCA	CDPCB0TPC01		
Building No.	Regulatory			
Cluster No.	Limits			
Lab Sample No.		728666		
Sampling Date		4/19/2006		
Matrix		SOLID		
Dilution Factor		20		
Units	mg/kg	mg/kg		
PESTICIDES/PCBs				
Aroclor-1016	50	0.66	U	
Aroclor-1221	50	0.66	U	
Aroclor-1232	50	0.66	U	
Aroclor-1242	50	0.66	U	
Aroclor-1248	50	0.66	U	
Aroclor-1254	50	22		
Aroclor-1260	50	0.66	U	
Aroclor-1262	50	0.66	U	
Aroclor-1268	50	0.66	U	

Table 46.
Summary of Wood Sample PCB Results - Drum Sample in Building 1C

Sample ID	TSCA	CDPCBPAH0CO1	
Building No.	Regulatory	1C	
Cluster No.	Limits	1	
Lab Sample No.		732616	
Sampling Date		5/2/2006	
Matrix		SOLID	
Dilution Factor		250	
Units	mg/kg	mg/kg	
PESTICIDES/PCBs			
Aroclor-1016	50	8.2	U
Aroclor-1221	50	8.2	U
Aroclor-1232	50	8.2	U
Aroclor-1242	50	8.2	U
Aroclor-1248	50	8.2	U
Aroclor-1254	50	300	
Aroclor-1260	50	8.2	U
Aroclor-1262	50	8.2	U
Aroclor-1268	50	8.2	U

Table 47.
Summary of Wood Sample PAH Results - Drum Sample in Building 1C

Sample ID	CDPCBPAH0CO1	
Building No.	1C	
Cluster No.	1	
Lab Sample No.	732616	
Sampling Date	5/2/2006	
Matrix	SOLID	
Dilution Factor	100	
Units	mg/kg	
SEMIVOLATILE COMPOUNDS (GC/MS)		
Naphthalene	300	
Acenaphthylene	100	J
Acenaphthene	150	J
Fluorene	210	
Phenanthrene	1500	
Anthracene	350	
Fluoranthene	1100	
Pyrene	1200	
Benzo(a)anthracene	660	
Chrysene	530	
Benzo(b)fluoranthene	290	
Benzo(k)fluoranthene	370	
Benzo(a)pyrene	380	
Indeno(1,2,3-cd)pyrene	210	
Dibenz(a,h)anthracene	68	
Benzo(g,h,i)perylene	230	
Total Confident Conc.	7398	
Total Estimated Conc. (TICs)	NA	

ATTACHMENT A

TABLE 4-8 (Sheet 1 of 4)
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE
SUMMARY OF BUILDING FLOOR DUST ANALYTICAL RESULTS

Constituent	Units	Building No. 1	Building No. 1A	Building No. 1B	Building No. 1C	Building No. 1D	Building No. 2	Building No. 2A	Building No. 3/4	Building No. 4A
<i>PCBs</i>										
Aroclor-1254	mg/kg	910 D - 8,300 D	130 D	520 D	270 D	14 D	18 D - 20 JD	46 D	4.9 D - 71 D	63 D
<i>Metals</i>										
Aluminum	mg/kg	4,670 - 6,850	23,700 J	6,370 J	4,490 J	1,640 J	10,700 - 11,700	7,240 J	5,410 - 5,730	12,300 J
Antimony	mg/kg	6.7 B - 42.1	64.9	3.1 B	1.6 B	931	7.9 B - 12.9	126	6 B - 6.7 B	10.4 B
Arsenic	mg/kg	8.8 J - 11.5 J	10.9 J	44.3 J	4.2 J	5.5 J	4.3 J - 6.5 J	20.1 J	6.8 J - 8.2 J	11.9 J
Barium	mg/kg	3,180 - 5,600	2,410	6,250	805	682	1,020 - 2,230	2,550	1,150 - 4,440	1,240
Beryllium	mg/kg	0.27 B - 0.36 B	0.17 B	0.27 B	0.22 B	0.06 B	0.42 B - 0.45 B	0.2 B	ND - 0.17 B	0.29 B
Cadmium	mg/kg	105 - 192	48.3	12.2	8.7	6.2	4.8 - 10.5	65	7.9 - 8.4	76.2
Calcium	mg/kg	36,000 - 41,100	42,600 J	67,200	50,500 J	205,000 J	74,600 - 77,900	32,200 J	23,100 - 42,300	27,000 J
Chromium	mg/kg	340 - 894	214 J	139	34.7 J	24.8 J	59.8 - 60.5	158 J	47.4 - 47.9	75.9 J
Cobalt	mg/kg	19.9 - 25.5	33.1 J	22.2 J	12.5 J	3.8 B	7.4 B - 8.1 B	106 J	16.8 - 58.6	44.4 J
Copper	mg/kg	727 - 7670	242 J	216 J	70 J	69.8 J	227 - 310	3,080 J	180 - 266	562 J
Iron	mg/kg	19,700 - 39,400	23,800 J	18,800	23,300 J	5,320 J	13,100 - 13,700	59,200 J	15,100 - 21,100	32,400 J
Lead	mg/kg	2,720 - 23,000	1,630 J	853	394 J	9,140 J	880 - 3,140	61,700 J	334 - 1,440	1,650 J
Magnesium	mg/kg	5,360 - 8,420	7,310 J	4,080 J	4,140 J	16,300 J	6,340 - 12,700	3,940 J	3,840 - 4,990	5,570 J
Manganese	mg/kg	373 - 487	284 J	220	219 J	98.4 J	303 - 331	626 J	240	364 J
Mercury	mg/kg	7.2 J - 8.8 J	1.4 J	3.1	4.6 J	0.16 J	0.41 J - 0.63 J	1.4 J	0.48 J - 1.3 J	1.1 J
Nickel	mg/kg	29.8 J - 50.5 J	87 J	26.9	10.7 J	32.4 J	66.4 J - 71.5 J	104	49.9 J - 65.9 J	64 J
Potassium	mg/kg	1,580 J - 2,130 J	5,180 J	1,380 J	718 JB	1,360 J	3,970 J - 6,020 J	3,860	2,880 J - 10,200 J	6,060 J
Selenium	mg/kg	0.25 B - 0.73 B	--	--	--	--	ND - 1.3	1.9 J	1.4 - 1.6 J	1.2 J
Silver	mg/kg	9.1 J - 12.7 J	6.1 J	4.8 J	2.2 J	2.7 J	3.7 J - 14.8 J	11.3 J	8 J - 12.5 J	42.3 J
Sodium	mg/kg	2,330 J - 4,490 J	8,140 J	2,680 J	697 JB	2,860 J	3,950 J - 9,910 J	12,200 J	5,130 J - 12,400 J	11,300 J
Thallium	mg/kg	ND - 1.4 B	--	--	1.1 B	--	0.52 B - 0.61 B	3.4	--	--
Vanadium	mg/kg	20.3 - 23.8	20.7	16.1	14.7	4.8 B	17.7 - 18.9	49.3	14.3 - 25.9	32.7
Zinc	mg/kg	2,770 J - 5,090 J	8,850 J	7,320	693 J	1,820 J	2,040 J - 2,280 J	38,400 J	1,590 J - 8,440 J	4,490 J

TABLE 4-8 (Sheet 2 of 4)
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE
SUMMARY OF BUILDING FLOOR DUST ANALYTICAL RESULTS

Constituent	Units	Building No. 5	Building No. 5A	Building No. 6	Building No. 7	Building No. 8	Building No. 9	Building No. 9A	Building No. 9B	Building No. 9C
<i>PCBs</i>										
Aroclor-1254	mg/kg	500 D - 3,300 D	69 JD - 190 D	2,700 D	29 JD	9.5 D	430 D	22 D	5.7 JD	28 D
<i>Metals</i>										
Aluminum	mg/kg	14,400 - 20,500	6,070 - 6,580	10,800	9,200	1,580 J	5,130 J	5,800 J	5,660	5,800 J
Antimony	mg/kg	15.9 - 126	4.6 B - 5.9 B	9.3 B	12.5	4 B	68.7	9.2 B	1.8 B	37.5
Arsenic	mg/kg	9.5 J - 20.7 J	5.2 - 5.4	12.7 J	8.9 J	8.1 J	11.8 J	16.7 J	2.6	23.3 J
Barium	mg/kg	330 - 711	1,210 - 1,620	631	2,400	200	4,170	360	145	10,000
Beryllium	mg/kg	0.12 B - 0.37 B	0.22 B - 0.41 B	0.43 B	0.52 B	0.08 B	0.18 B	0.35 B	0.13 B	0.37 B
Cadmium	mg/kg	61.1 - 346	5.8 - 6.9	45.7	26.3	2.2	40.2	16.9	1.9	59.7
Calcium	mg/kg	14,900 - 24,100	31,900 - 40,100	47,600	16,000	6,450 J	45,300 J	42,200 J	12,100	31,200 J
Chromium	mg/kg	258 - 736	180 - 394	91.9	288	48.6 J	115 J	304 J	18.3	344 J
Cobalt	mg/kg	19.3 - 33.9	14.7 - 16.6	16.5	19.8	16.2 J	18.3 J	26.5 J	7.4 B	17.8 J
Copper	mg/kg	23,100 - 42,600	226 - 262	7,950	314	428 J	1,930 J	873 J	101	1,230 J
Iron	mg/kg	152,000 - 349,000	20,600 - 23,200	69,800	47,900	287,000 J	143,000 J	181,000 J	9,120	80,400 J
Lead	mg/kg	3,880 - 24,600	431 - 2,370	3,090	1,080	279 J	1,050 J	1,120 J	67.3	1,980 J
Magnesium	mg/kg	2,870 - 3,810	5,710 - 19,300	7,640	4,380	1,290 J	5,170 J	4,980 J	3,120	10,500 J
Manganese	mg/kg	1,150 - 1,390	263 - 312	561	1,060	1,070 J	882 J	1,660 J	175	754 J
Mercury	mg/kg	0.28 J - 1.8 J	0.6 J - 0.79 J	24.4 J	0.23 J	1.4 J	3.5 J	2.3 J	0.08 JB	4 J
Nickel	mg/kg	179 J - 253 J	50.9 J - 112 J	79.9 J	48.8 J	43.5 J	59.5 J	150 J	27.8 J	170 J
Potassium	mg/kg	3,080 J - 6,630 J	2,490 J - 2,800 J	2,760 J	1,520 J	689 B	2,020 J	2,450 J	2,530 J	2,490 J
Selenium	mg/kg	5.4 J - 9.8 J	1.4 J	3.7 J	5.1 J	1.8 J	0.56 JB	2.7 J	0.97 B	2.1 J
Silver	mg/kg	20.6 J - 85.9 J	2.9 J - 5.1 J	11.6 J	2.1 J	5 J	7.1 J	10.8 J	2.1 J	19 J
Sodium	mg/kg	2,800 J - 4,800 J	3,610 J - 4,530 J	5,450 J	1,210 J	1,570 J	14,000 J	2,250 J	2,080 J	4,290 J
Thallium	mg/kg	R	--	R	R	17.6 J	5.9 J	9.6 J	--	4.2
Vanadium	mg/kg	18.5 - 31	15.4 - 27.6	35.4	35	15.6	24	20.4	25.6	44.7
Zinc	mg/kg	3,610 J - 6,160 J	2,660 J - 2,760 J	4,250 J	981 J	883 J	41,500 J	1,900 J	420 J	2,190 J

TABLE 4-8 (Sheet 3 of 4)
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE
SUMMARY OF BUILDING FLOOR DUST ANALYTICAL RESULTS

Constituent	Units	Building No. 10	Building No. 11	Building No. 12	Building No. 13	Building No. 14	Building No. 15	Building No. 16	Building No. 18
<i>PCBs</i>									
Aroclor-1254	mg/kg	33 D	45 D	13 D	14 D	6.3 D	8.4	51 D	41 D
<i>Metals</i>									
Aluminum	mg/kg	15,000 J	28,600 J	155,000	3,150 J	7,520 J	8,370 J	11,800 J	7,620 J
Antimony	mg/kg	44.9	6.3 B	12.2	4.4 B	4.3 B	15.8	2 B	14.2
Arsenic	mg/kg	22.9 J	11.3 J	21.6 J	15.3 J	10.1 J	27.9 J	100 J	6.8 J
Barium	mg/kg	820	451	2,460	661	195	4,830	572	315
Beryllium	mg/kg	0.21 B	0.23 B	0.15 B	0.14 B	0.82 B	0.34 B	0.65 B	0.26 B
Cadmium	mg/kg	428	40.4	14.5	10.6	17.6	33.3	12.2	7.4
Calcium	mg/kg	33,400 J	19,700 J	12,700	12,900 J	10,000 J	35,200	18,100 J	22,600
Chromium	mg/kg	148 J	666 J	471	57.9 J	321 J	523	95.2 J	38.9
Cobalt	mg/kg	25.3 J	22 J	49.7	8.3 B	117 J	72.4 J	24.7 J	31 J
Copper	mg/kg	448 J	401 J	1,650	135 J	3,040 J	1,410 J	480 J	454 J
Iron	mg/kg	68,500 J	72,700 J	382,000	9,560 J	66,100 J	62,400	64,800 J	42,700
Lead	mg/kg	6,800 J	1,510 J	91.7	470 J	407 J	3,700	1,550 J	1,300
Magnesium	mg/kg	6,380 J	4,060 J	3,430	2,770 J	3,290 J	13,000 J	8,770 J	4,740 J
Manganese	mg/kg	734 J	553 J	1,870	170 J	689 J	579	697 J	362
Mercury	mg/kg	1.1 J	0.31 J	1.8 J	0.2 J	1.2 J	4.2	2.8 J	0.83
Nickel	mg/kg	188 J	69.9 J	253 J	24.3 J	182 J	545	117 J	66
Potassium	mg/kg	3,960 J	1,440 J	3,550 J	3,980 J	20,300 J	5,070 J	1,600 J	2,990 J
Selenium	mg/kg	2 J	1.1 J	9.6 J	0.63 JB	7.5 J	5.2 J	--	--
Silver	mg/kg	26.9 J	6.4 J	6.2 J	2.2 J	51.3 J	27 J	7.9 J	2.5 J
Sodium	mg/kg	10,500 J	1,400 J	1,040 J	3,810 J	20,200 J	4,280 J	1,090 J	7,780 J
Thallium	mg/kg	2 B	3.6	R	--	4.4	--	3.3	--
Vanadium	mg/kg	40.6	55.2	32.2	18.4	70.9	217	335	74.2
Zinc	mg/kg	3,410 J	1,490 J	1,100 J	1,070 J	996 J	4,100	1,650 J	1,710

TABLE 4-8 (Sheet 4 of 4)
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE
SUMMARY OF BUILDING FLOOR DUST ANALYTICAL RESULTS

Notes:

ND or -- = Not detected.

J = Estimated value.

D = Value obtained from dilution analysis.

B (metals only) = Value between instrument detection limit and practical quantitation limit.

R = Rejected (unusable) value.

TABLE G-2
PCBs DETECTED IN BUILDING FLOOR DUST
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE

SITE	BFD01-01	BFD01-02	BFD02-01	BFD02-02	BFD03-01
FWENC SAMPLE ID	CDE-BFD01-01	CDE-BFD01-02	CDE-BFD02-01	CDE-BFD02-02	CDE-BFD03-01
DATE / TIME	05/30/2000 / 15:00	05/30/2000 / 16:00	05/31/2000 / 11:00	05/31/2000 / 13:40	05/31/2000 / 16:09
DEPTH (ft)	0.01	0.01	0.01	0.01	0.01
CONSTITUENT					
Aroclor 1016	170000 U	690000 U	3500 UJ	3500 U	3500 U
Aroclor 1221	350000 U	1400000 U	7000 UJ	7100 U	7000 U
Aroclor 1232	170000 U	690000 U	3500 UJ	3500 U	3500 U
Aroclor 1242	170000 U	690000 U	3500 UJ	3500 U	3500 U
Aroclor 1248	170000 U	690000 U	3500 UJ	3500 U	3500 U
Aroclor 1254	910000 D	8300000 D	20000 JD	18000 D	4900 D
Aroclor 1260	170000 U	690000 U	3500 UJ	3500 U	3500 U

Notes:
All results are in ug/Kg.

TABLE G-2
PCBs DETECTED IN BUILDING FLOOR DUST
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE

SITE FWENC SAMPLE ID DATE / TIME DEPTH (ft)	BFD03-02 CDE-BFD03-02 06/01/2000 / 10:00 0.01	BFD05-01 CDE-BFD05-01 06/01/2000 / 16:10 0.01	BFD05-02 CDE-BFD05-02 06/02/2000 / 09:45 0.01	BFD05-03 CDE-BFD05-03 06/02/2000 / 11:10 0.01	BFD06-01 CDE-BFD06-01 06/05/2000 / 15:05 0.01
CONSTITUENT					
Aroclor 1016	3300 U	3300 UJ	3300 UJ	3300 U	4000 UJ
Aroclor 1221	6700 U	6700 UJ	6700 UJ	6700 U	7900 UJ
Aroclor 1232	3300 U	3300 UJ	3300 UJ	3300 U	4000 UJ
Aroclor 1242	3300 U	3300 UJ	3300 UJ	3300 U	4000 UJ
Aroclor 1248	3300 U	3300 UJ	3300 UJ	3300 U	4000 UJ
Aroclor 1254	71000 D	1200000 D	3300000 D	500000 D	2700000 D
Aroclor 1260	3300 U	3300 UJ	3300 UJ	3300 U	4000 UJ

Notes:
All results are in ug/Kg.

TABLE G-2
PCBs DETECTED IN BUILDING FLOOR DUST
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE

SITE FWENC SAMPLE ID DATE / TIME DEPTH (ft)	BFD07-01 CDE-BFD07-01 06/05/2000 / 12:15 0.01	BFD08-01 CDE-BFD08-01 06/06/2000 / 15:15 0.01	BFD09-01 CDE-BFD09-01 06/07/2000 / 13:45 0.01	BFD10-01 CDE-BFD-10-01 06/09/2000 / 09:45 0.01	BFD11-01 CDE-BFD11-01 06/06/2000 / 11:50 0.01
CONSTITUENT					
Aroclor 1016	3600 UJ	3400 U	3400 U	3400 U	7200 U
Aroclor 1221	7300 UJ	6900 U	6900 U	6800 U	14000 U
Aroclor 1232	3600 UJ	3400 U	3400 U	3400 U	7200 U
Aroclor 1242	3600 UJ	3400 U	3400 U	3400 U	7200 U
Aroclor 1248	3600 UJ	3400 U	3400 U	3400 U	7200 U
Aroclor 1254	29000 JD	9500 D	430000 D	33000 D	45000 DE
Aroclor 1260	3600 UJ	3400 U	3400 U	3400 U	7200 U

Notes:

All results are in ug/Kg.

TABLE G-2
PCBs DETECTED IN BUILDING FLOOR DUST
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE

SITE	BFD12-01	BFD13-01	BFD14-01	BFD15-01	BFD16-01
FWENC SAMPLE ID	CDE-BFD12-01	CDE-BFD13-01	CDE-BFD14-01	CDE-BFD15-01	CDE-BFD-16-01
DATE / TIME	06/02/2000 / 15:40	06/08/2000 / 16:00	06/07/2000 / 11:15	06/13/2000 / 12:15	06/09/2000 / 11:20
DEPTH (ft)	0.01	0.01	0.01	0.01	0.01
CONSTITUENT					
Aroclor 1016	3300 U	3500 U	3700 U	340 U	3400 U
Aroclor 1221	6700 U	7100 U	7500 U	670 U	6800 U
Aroclor 1232	3300 U	3500 U	3700 U	340 U	3400 U
Aroclor 1242	3300 U	3500 U	3700 U	340 U	3400 U
Aroclor 1248	3300 U	3500 U	3700 U	340 U	3400 U
Aroclor 1254	13000 D	14000 D	6300 D	8400	51000 D
Aroclor 1260	3300 U	3500 U	3700 U	340 U	3400 U

Notes:
All results are in ug/Kg.

TABLE G-2
PCBs DETECTED IN BUILDING FLOOR DUST
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE

SITE FWENC SAMPLE ID DATE / TIME DEPTH (ft)	BFD16-01 CDE-BFD-16-91 Duplicate of CDE-BFD-16-01	BFD18-01 CDE-BFD18-01 06/13/2000 / 10:35 0.01	BFD1A-01 CDE-BFD1A-01 06/12/2000 / 10:30 0.01	BFD1B-01 CDE-BFD01B-01 06/13/2000 / 08:45 0.01	BFD1C-01 CDE-BFD1C-01 06/09/2000 / 14:30 0.01
CONSTITUENT					
Aroclor 1016	3300 U	3400 U	7100 U	3400 U	3400 U
Aroclor 1221	6700 U	6800 U	14000 U	6800 U	6700 U
Aroclor 1232	3300 U	3400 U	7100 U	3400 U	3400 U
Aroclor 1242	3300 U	3400 U	7100 U	3400 U	3400 U
Aroclor 1248	3300 U	3400 U	7100 U	3400 U	3400 U
Aroclor 1254	46000 D	41000 D	130000 D	520000 D	270000 D
Aroclor 1260	3300 U	3400 U	7100 U	3400 U	3400 U

Notes:
All results are in ug/Kg.

TABLE G-2
PCBs DETECTED IN BUILDING FLOOR DUST
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE

SITE	BFD1D-01	BFD2A-01	BFD4A-01	BFD5A-01	BFD5A-02
FWENC SAMPLE ID	CDE-BFD1D-01	CDE-BFD2A-01	CDE-BFD4A-01	CDE-BFD5A-01	CDE-BFD5A-02
DATE / TIME	06/12/2000 / 09:30	06/07/2000 / 17:00	06/07/2000 / 15:25	06/01/2000 / 12:20	06/01/2000 / 14:55
DEPTH (ft)	0.01	0.01	0.01	0.01	0.01
CONSTITUENT					
Aroclor 1016	3400 U	3400 U	3500 U	3300 U	3300 UJ
Aroclor 1221	6800 U	6800 U	6900 U	6700 U	6700 UJ
Aroclor 1232	3400 U	3400 U	3500 U	3300 U	3300 UJ
Aroclor 1242	3400 U	3400 U	3500 U	3300 U	3300 UJ
Aroclor 1248	3400 U	3400 U	3500 U	3300 U	3300 UJ
Aroclor 1254	14000 D	46000 D	63000 D	190000 D	69000 JD
Aroclor 1260	3400 U	3400 U	3500 U	3300 U	3300 UJ

Notes:
All results are in ug/Kg.

TABLE G-2
PCBs DETECTED IN BUILDING FLOOR DUST
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE

SITE	BFD9A-01	BFD9A-01	BFD9B-01	BFD9C-01
FWENC SAMPLE ID	CDE-BFD9A-01	Duplicate of	CDE-BFD9B-01	CDE-BFD9C-01
DATE / TIME	06/06/2000 / 08:50	CDE-BFD9A-01	06/05/2000 / 10:10	06/08/2000 / 10:20
DEPTH (ft)	0.01	0.01	0.01	0.01
CONSTITUENT				
Aroclor 1016	3500 U	7100 U	3800 UJ	3400 U
Aroclor 1221	7000 U	14000 U	3800 UJ	6800 U
Aroclor 1232	3500 U	7100 U	3800 UJ	3400 U
Aroclor 1242	3500 U	7100 U	3800 UJ	3400 U
Aroclor 1248	3500 U	7100 U	3800 UJ	3400 U
Aroclor 1254	22000 D	58000 D	5700 JD	28000 D
Aroclor 1260	3500 U	7100 U	3800 UJ	3400 U

Notes:

All results are in ug/Kg.

TABLE G-3
INORGANICS DETECTED IN BUILDING FLOOR DUST
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE

SITE	BFD01-01	BFD01-02	BFD02-01	BFD02-02	BFD03-01
FWENC SAMPLE ID	CDE-BFD01-01	CDE-BFD01-02	CDE-BFD02-01	CDE-BFD02-02	CDE-BFD03-01
DATE / TIME	05/30/2000 / 15:00	05/30/2000 / 16:00	05/31/2000 / 11:00	05/31/2000 / 13:40	05/31/2000 / 16:09
DEPTH (ft)	0.01	0.01	0.01	0.01	0.01
CONSTITUENT					
Aluminum	6850	4670	11700	10700	5730
Antimony	6.7 B	42.1	12.9	7.9 B	6 B
Arsenic	11.5 J	8.8 J	4.3 J	6.5 J	8.2 J
Barium	3180	5600	2230	1020	1150
Beryllium	0.36 B	0.27 B	0.45 B	0.42 B	0.21 U
Cadmium	105	192	4.8	10.5	8.4
Calcium	36000	41100	77900	74600	23100
Chromium (total)	340	894	59.8	60.5	47.9
Cobalt	19.9	25.5	7.4 B	8.1 B	16.8
Copper	727	7670	227	310	180
Iron	19700	39400	13700	13100	15100
Lead	2720	23000	3140	880	334
Magnesium	8420	5360	6340	12700	4990
Manganese	373	487	331	303	240
Mercury	8.8 J	7.2 J	0.41 J	0.63 J	0.48 J
Nickel	50.5 J	29.8 J	66.4 J	71.5 J	49.9 J
Potassium	2130 J	1580 J	3970 J	6020 J	10200 J
Selenium	0.73 B	0.25 B	0.15 U	1.3	1.6 J
Silver	9.1 J	12.7 J	3.7 J	14.8 J	12.5 J
Sodium	4490 J	2330 J	3950 J	9910 J	12400 J
Thallium	0.14 U	1.4 B	0.52 B	0.61 B	0.15 U
Vanadium	23.8	20.3	17.7	18.9	25.9
Zinc	2770 J	5090 J	2040 J	2280 J	1590 J

Notes:

All results are in mg/Kg.

TABLE G-3
INORGANICS DETECTED IN BUILDING FLOOR DUST
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE

SITE	BFD03-02	BFD05-01	BFD05-02	BFD05-03	BFD06-01
FWENC SAMPLE ID	CDE-BFD03-02	CDE-BFD05-01	CDE-BFD05-02	CDE-BFD05-03	CDE-BFD06-01
DATE / TIME	06/01/2000 / 10:00	06/01/2000 / 16:10	06/02/2000 / 09:45	06/02/2000 / 11:10	06/05/2000 / 15:05
DEPTH (ft)	0.01	0.01	0.01	0.01	0.01
CONSTITUENT					
Aluminum	5410	14400	16500	20500	10800
Antimony	6.7 B	126	32.9	15.9	9.3 B
Arsenic	6.8 J	20.7 J	11.3 J	9.5 J	12.7 J
Barium	4440	387	330	711	631
Beryllium	0.17 B	0.12 B	0.19 B	0.37 B	0.43 B
Cadmium	7.9	61.1	346	108	45.7
Calcium	42300	14900	22800	24100	47600
Chromium (total)	47.4	258	736	487	91.9
Cobalt	58.6	33.9	26.6	19.3	16.5
Copper	266	23100	31300	42600	7950
Iron	21100	349000	161000	152000	69800
Lead	1440	24600	5340	3880	3090
Magnesium	3840	2870	3350	3810	7640
Manganese	240	1310	1390	1150	561
Mercury	1.3 J	1.8 J	1.1 J	0.28 J	24.4 J
Nickel	65.9 J	240 J	253 J	179 J	79.9 J
Potassium	2880 J	3080 J	6630 J	3180 J	2760 J
Selenium	1.4	9.8 J	6.6 J	5.4 J	3.7 J
Silver	8 J	85.9 J	35.3 J	20.6 J	11.6 J
Sodium	5130 J	2800 J	4800 J	3850 J	5450 J
Thallium	0.46 UJ	8.6 R	4.3 R	5.2 R	2.2 R
Vanadium	14.3	18.5	31	25.2	35.4
Zinc	8440 J	6160 J	5230 J	3610 J	4250 J

Notes:
All results are in mg/Kg.

TABLE G-3
INORGANICS DETECTED IN BUILDING FLOOR DUST
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE

SITE FWENC SAMPLE ID DATE / TIME DEPTH (ft)	BFD07-01 CDE-BFD07-01 06/05/2000 / 12:15 0.01	BFD08-01 CDE-BFD08-01 06/06/2000 / 15:15 0.01	BFD09-01 CDE-BFD09-01 06/07/2000 / 13:45 0.01	BFD10-01 CDE-BFD-10-01 06/09/2000 / 09:45 0.01	BFD11-01 CDE-BFD11-01 06/06/2000 / 11:50 0.01
CONSTITUENT					
Aluminum	9200	1580 J	5130 J	15000 J	28600 J
Antimony	12.5	4 B	68.7	44.9	6.3 B
Arsenic	8.9 J	8.1 J	11.8 J	22.9 J	11.3 J
Barium	2400	200	4170	820	451
Beryllium	0.52 B	0.08 B	0.18 B	0.21 B	0.23 B
Cadmium	26.3	2.2	40.2	428	40.4
Calcium	16000	6450 J	45300 J	33400 J	19700 J
Chromium (total)	288	48.6 J	115 J	148 J	666 J
Cobalt	19.8	16.2 J	18.3 J	25.3 J	22 J
Copper	314	428 J	1930 J	448 J	401 J
Iron	47900	287000 J	143000 J	68500 J	72700 J
Lead	1080	279 J	1050 J	6800 J	1510 J
Magnesium	4380	1290 J	5170 J	6380 J	4060 J
Manganese	1060	1070 J	882 J	734 J	553 J
Mercury	0.23 J	1.4 J	3.5 J	1.1 J	0.31 J
Nickel	48.8 J	43.5 J	59.5 J	188 J	69.9 J
Potassium	1520 J	689 B	2020 J	3960 J	1440 J
Selenium	5.1 J	1.8 J	0.56 JB	2 J	1.1 J
Silver	2.1 J	5 JN	7.1 J	26.9 J	6.4 JN
Sodium	1210 J	1570 J	14000 J	10500 J	1400 J
Thallium	3 R	17.6 J	5.9 J	2 B	3.6
Vanadium	35	15.6	24	40.6	55.2
Zinc	981 J	883 J	41500 J	3410 J	1490 J

Notes:
All results are in mg/Kg.

TABLE G-3
INORGANICS DETECTED IN BUILDING FLOOR DUST
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE

SITE FWENC SAMPLE ID DATE / TIME DEPTH (ft)	BFD12-01 CDE-BFD12-01 06/02/2000 / 15:40 0.01	BFD13-01 CDE-BFD13-01 06/08/2000 / 16:00 0.01	BFD14-01 CDE-BFD14-01 06/07/2000 / 11:15 0.01	BFD15-01 CDE-BFD15-01 06/13/2000 / 12:15 0.01	BFD16-01 CDE-BFD-16-01 06/09/2000 / 11:20 0.01
CONSTITUENT					
Aluminum	155000	3150 J	7520 J	8370 J	11800 J
Antimony	12.2	4.4 B	4.3 B	15.8	2 B
Arsenic	21.6 J	15.3 J	10.1 J	27.9 J	100 J
Barium	2460	661	195	4830	572
Beryllium	0.15 B	0.14 B	0.82 B	0.34 B	0.65 B
Cadmium	14.5	10.6	17.6	33.3	12.2
Calcium	12700	12900 J	10000 J	35200	18100 J
Chromium (total)	471	57.9 J	321 J	523	95.2 J
Cobalt	49.7	8.3 B	117 J	72.4 J	24.7 J
Copper	1650	135 J	3040 J	1410 J	480 J
Iron	382000	9560 J	66100 J	62400	64800 J
Lead	91.7	470 J	407 J	3700	1550 J
Magnesium	3430	2770 J	3290 J	13000 J	8770 J
Manganese	1870	170 J	689 J	579	697 J
Mercury	1.8 J	0.2 JN	1.2 J	4.2	2.8 J
Nickel	253 J	24.3 J	182 J	545	117 J
Potassium	3550 J	3980 J	20300 J	5070 J	1600 J
Selenium	9.6 J	0.63 JB	7.5 J	5.2 J	0.34 UJ
Silver	6.2 J	2.2 J	51.3 J	27 J	7.9 J
Sodium	1040 J	3810 J	20200 J	4280 J	1090 J
Thallium	3 R	0.48 U	4.4	0.46 U	3.3
Vanadium	32.2	18.4	70.9	217	335
Zinc	1100 J	1070 J	996 J	4100	1650 J

Notes:
All results are in mg/Kg.

TABLE G-3
INORGANICS DETECTED IN BUILDING FLOOR DUST
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE

SITE FWENC SAMPLE ID DATE / TIME DEPTH (ft)	BFD16-01 CDE-BFD-16-91 Duplicate of CDE-BFD-16-01	BFD18-01 CDE-BFD18-01 06/13/2000 / 10:35 0.01	BFD1A-01 CDE-BFD1A-01 06/12/2000 / 10:30 0.01	BFD1B-01 CDE-BFD01B-01 06/13/2000 / 08:45 0.01	BFD1C-01 CDE-BFD1C-01 06/09/2000 / 14:30 0.01
CONSTITUENT					
Aluminum	10300 J	7620 J	23700 JE	6370 J	4490 J
Antimony	1.9 B	14.2	64.9 E	3.1 B	1.6 B
Arsenic	87.4 J	6.8 J	10.9 J	44.3 J	4.2 J
Barium	525	315	2410	6250	805
Beryllium	0.55 B	0.26 B	0.17 B	0.27 B	0.22 B
Cadmium	10.2	7.4	48.3	12.2	8.7
Calcium	16000 J	22600	42600 J	67200	50500 J
Chromium (total)	82.7 J	38.9	214 J	139	34.7 J
Cobalt	21.6 J	31 J	33.1 JE	22.2 J	12.5 J
Copper	424 J	454 J	242 J	216 J	70 J
Iron	62600 J	42700	23800 J	18800	23300 J
Lead	1440 J	1300	1630 JE	853	394 J
Magnesium	7750 J	4740 J	7310 J	4080 J	4140 J
Manganese	639 J	362	284 J	220	219 J
Mercury	3 J	0.83	1.4 J	3.1	4.6 J
Nickel	108 J	66	87 J	26.9	10.7 J
Potassium	1470 J	2990 J	5180 JE	1380 J	718 JB
Selenium	0.34 UJ	0.36 UJ	0.36 UJ	0.35 UJ	0.33 UJ
Silver	6.8 J	2.5 J	6.1 JN	4.8 J	2.2 J
Sodium	996 JB	7780 J	8140 J	2680 J	697 JB
Thallium	4.2	0.48 U	0.48 U	0.47 U	1.1 B
Vanadium	285	74.2	20.7	16.1	14.7
Zinc	1500 J	1710	8850 J	7320	693 J

Notes:
All results are in mg/Kg.

TABLE G-3
INORGANICS DETECTED IN BUILDING FLOOR DUST
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE

SITE FWENC SAMPLE ID DATE / TIME DEPTH (ft)	BFD1D-01 CDE-BFD1D-01 06/12/2000 / 09:30 0.01	BFD2A-01 CDE-BFD2A-01 06/07/2000 / 17:00 0.01	BFD4A-01 CDE-BFD4A-01 06/07/2000 / 15:25 0.01	BFD5A-01 CDE-BFD5A-01 06/01/2000 / 12:20 0.01	BFD5A-02 CDE-BFD5A-02 06/01/2000 / 14:55 0.01
CONSTITUENT					
Aluminum	1640 JE	7240 J	12300 J	6070	6580
Antimony	931 E	126	10.4 B	4.6 B	5.9 B
Arsenic	5.5 J	20.1 J	11.9 J	5.2	5.4
Barium	682	2550	1240	1210	1620
Beryllium	0.06 B	0.2 B	0.29 B	0.22 B	0.41 B
Cadmium	6.2	65	76.2	5.8	6.9
Calcium	205000 J	32200 J	27000 J	31900	40100
Chromium (total)	24.8 J	158 J	75.9 J	394	180
Cobalt	3.8 BE	106 J	44.4 J	16.6	14.7
Copper	69.8 J	3080 J	562 J	226	262
Iron	5320 J	59200 J	32400 J	20600	23200
Lead	9140 JE	61700 J	1650 J	2370	431
Magnesium	16300 J	3940 J	5570 J	5710	19300
Manganese	98.4 J	626 J	364 J	263	312
Mercury	0.16 J	1.4 JN	1.1 J	0.79 J	0.6 J
Nickel	32.4 J	104	64 J	50.9 J	112 J
Potassium	1360 JE	3860	6060 J	2490 J	2800 J
Selenium	0.35 UJ	1.9 J	1.2 J	1.4 J	1.4 J
Silver	2.7 JN	11.3 J	42.3 J	2.9 J	5.1 J
Sodium	2860 J	12200 J	11300 J	3610 J	4530 J
Thallium	0.47 U	3.4	0.48 U	0.46 UJ	0.45 UJ
Vanadium	4.8 B	49.3	32.7	15.4	27.6
Zinc	1820 J	38400 J	4490 J	2760 J	2660 J

Notes:
All results are in mg/Kg.

TABLE G-3
INORGANICS DETECTED IN BUILDING FLOOR DUST
CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE

SITE FWENC SAMPLE ID DATE / TIME DEPTH (ft)	BFD9A-01 CDE-BFD9A-01 06/06/2000 / 08:50 0.01	BFD9A-01 Duplicate of CDE-BFD9A-01 0.01	BFD9B-01 CDE-BFD9B-01 06/05/2000 / 10:10 0.01	BFD9C-01 CDE-BFD9C-01 06/08/2000 / 10:20 0.01
CONSTITUENT				
Aluminum	5800 J	5500 J	5660	5800 J
Antimony	9.2 B	8 B	1.8 B	37.5
Arsenic	16.7 J	13.8 J	2.6	23.3 J
Barium	360	505	145	10000
Beryllium	0.35 B	0.3 B	0.13 B	0.37 B
Cadmium	16.9	17.4	1.9	59.7
Calcium	42200 J	36500 JE	12100	31200 J
Chromium (total)	304 J	264 JE	18.3	344 J
Cobalt	26.5 J	23.6 JE	7.4 B	17.8 J
Copper	873 J	641 J	101	1230 J
Iron	181000 J	151000 JE	9120	80400 J
Lead	1120 J	1110 JE	67.3	1980 J
Magnesium	4980 J	4560 J	3120	10500 J
Manganese	1660 J	1460 JE	175	754 J
Mercury	2.3 J	2.78 J	0.08 JB	4 JN
Nickel	150 J	122 JE	27.8 J	170 J
Potassium	2450 J	2330 JE	2530 J	2490 J
Selenium	2.7 J	2.3 J	0.97 B	2.1 J
Silver	10.8 JN	9 JN	2.1 J	19 J
Sodium	2250 J	2130 J	2080 J	4290 J
Thallium	9.6 J	7.2 J	0.46 UJ	4.2
Vanadium	20.4	20.6	25.6	44.7
Zinc	1900 J	1840 JE	420 J	2190 J

Notes:
All results are in mg/Kg.

ATTACHMENT B

ATTACHMENT B. DATA QUALITY OBJECTIVES

Data Quality Objectives (DQOs) are used to help decision-makers collect data of the right type, quality, and quantity to support decisions. The approach to developing DQOs is an iterative one, designed to take decision makers through a strategic planning process from broad project goals through a number of refining steps toward generating environmental data that will be appropriate to making the decisions needed to reach the goals.

This document begins with a “project-level” statement of the DQOs that sets the framework for addressing the environmental problems of the study area. The project-level DQOs focus on the information that the decision-making team needs to carry out an integrated assessment that will produce a comprehensive plan for the Pre-Design Investigation for the demolition of the Cornell Dubilier facility buildings.

1.0 State the Problem

The Cornell Dubilier Electronics Superfund Site, OU-2, facility buildings may contain building materials, which may be regulated when disposed of. They are known to contain asbestos, PCBs, and heavy metals. The objectives of the study for the facility buildings are the following:

- To characterize the nature and extent of hazardous constituents in the facility building materials in support of building demolition activities.
- To determine which and what building materials can be disposed of as hazardous wastes and as regulated non-hazardous waste.

2.0 Identify the Decision

To meet the objectives, the following fundamental questions will need to be answered during the investigation:

Fundamental Questions	Alternative Actions
If we do not sample any building materials, will there be a significant risk in assuming that the building materials are hazardous and/or non-hazardous for disposal?	<ul style="list-style-type: none">– Assume that building materials are hazardous and dispose of them accordingly reducing the need for further sampling and analyses.– Determine if a building material is non-hazardous or hazardous by further sampling and analyses and dispose of accordingly based upon the data.
Are there sufficient data from previous investigations to make informed decisions	<ul style="list-style-type: none">– If data is sufficient dispose of the building material without further sampling and

for disposal?	<p>analyses</p> <ul style="list-style-type: none"> – If insufficient collect additional sample for analyses as required to supplement and confirm existing data.
Are there building materials that need to be removed prior to demolition of the building(s)?	<ul style="list-style-type: none"> – Leave non-hazardous materials in the buildings during demolition. – Remove hazardous materials which would cause the waste to be hazardous.
What building materials may pose a health risk during building demolition activities?	<ul style="list-style-type: none"> - Examine Historical data - Collect and analyze more samples. - Compare data to action levels to determine which pose a health hazard - Use this data to properly dispose of the materials during demolition.

The following are the decisions need to be made:

Determine whether or not there is any risk by assuming materials are either hazardous of non-hazardous for disposal.

Determine if the existing data in the RI is sufficient and determine what additional analytical test data is require to properly dispose of the building materials during demolition.

Determine which building material(s) if any should be removed from the building(s) prior to demolition to reduce the hazards during demolition.

Identify which building materials pose a hazard compared to action levels by examination of the exiting and new data for the chemical of concern including as PCB Aroclors, metals, and asbestos against regulatory requirements.

3.0 Identify the Inputs to the Decision

The following inputs are required to answer the fundamental questions identified in Step 2:

- Review the existing environmental data for building materials in each building

- Gather information from field visit observations, photographs, common construction practice, building construction dates, physical setting, and contamination sources and process history
- Collect any additional building material samples needed to identify or confirm constituents of potential concern and to evaluate extent and nature of contamination
- Determine what analytical methods, and if field or laboratory analyses, will be appropriate
- Determine what the screening criteria will be based upon applicable regulations (local, state, federal) and action limits (risk based for human health) for demolition and continued occupancy, respectively

4.0 Define the Boundaries of the Study

The physical boundaries of the investigation are the perimeters of each of the facility buildings and any associated structures. All facility buildings are located within the site. Also included are the storage tanks and the water tower within the site. The temporal boundary of the study is defined by the activities associated with the building demolition of some or all the buildings. These activities are currently planned to commence in October, 2006. There may be practical constraints and obstacles which could interfere with the data collection. For example the buildings are not be entirely empty and may contain equipment and materials, which could interfere with the sampling efforts and making collection of the intended samples difficult.

5.0 Develop a Decision Rule

The purpose of this step is to integrate the outputs from the previous steps into a statement that defines the conditions that would cause the decision-maker to choose among alternative actions. The following primary decision rules will be used to answer the fundamental questions:

- For building demolition, if the maximum concentration for each sample at each homogeneous location for each parameter tested is below the screening criteria (regulatory or risk based), then disposal of that homogeneous building material, with respect to that parameter tested, would not be a concern.

6.0 Specify Limits on Decision Errors

This step is to specify the decision-maker's acceptable limits on decision errors, which are used to establish appropriate performance goals for limiting uncertainty in environmental data. These acceptable limits on decision errors allow decision-makers to generate resource-effective sampling designs while limiting uncertainties in the collected data.

There are two types of decision errors applicable to estimating the true value of a population: 1) sampling design error, which occurs when the sampling design is unable to

capture the complete state of natural variability over space and time; and 2) measurement error, which refers to a combination of random and systematic errors, known as the total error, can be controlled by hypothesis testing; that is, selecting the null hypothesis (H_0) and the alternative hypothesis (H_a) and testing to reject or accept H_0 . The null hypothesis is the baseline condition that is presumed to be true in the absence of strong evidence to the contrary.

The null hypothesis and alternative hypothesis are as follows:

- H_0 : Building materials of the facility building(s) do not contain constituents, which are regulated when disposed of when the building(s) are demolished, nor pose risk if the building(s) are not to be demolished and will be occupied.
- H_a : Building materials of the facility building(s) do contain constituents, which are regulated when disposed of when the building(s) are demolished, or pose risk if the building(s) are not to be demolished and will be occupied.

There are two types of decision errors: 1) the false rejection decision error (false positive), or Type I error, which occurs when the null hypothesis is rejected when it is true; and 2) the false acceptance decision error (false negative), or Type II error, which occurs when the null hypothesis is not rejected when it is false. In this case, the false rejection error is concluding that the building materials do contain constituents, which are regulated when disposed of or they pose risk if the buildings are not demolished and will be occupied, when the buildings actually do not contain such constituents. And the false acceptance error is concluding that the building materials do not contain constituents, which are regulated when disposed of nor do they pose risk if the buildings are not demolished and will be occupied, when the buildings actually do contain such constituents.

The consequence of the false rejection decision error will be unnecessary expenditure of resources such as funding, personnel, and time. The consequence of the false acceptance decision error is that the constituents in the building materials pose risk to the environment or human health. Because of the possible severity of the false acceptance decision error consequence, the false rejection error is more tolerable than the false acceptance decision error. The former will occur when the analytical results are biased high, and the latter will occur when the analytical results are biased low.

7.0 Optimize the Design for Obtaining Data

This step involves identifying the most resource-effective sampling and analysis design for generating data that are expected to satisfy project DQOs.

The consequence of the decision error will need to be balanced against the cost of limiting the possibility of these errors. These errors will be managed by the use of precise and accurate analytical methods and a relatively large number of samples along with duplicate samples. The large number of samples will need to be collected to minimize a false acceptance decision, and to minimize risk. The approach to overcome

the large number of samples is to limit the number of samples for homogeneous materials and of materials that are known (or highly likely) to contain constituents of concern. The approach to overcome the risk is to systematically perform sampling, even in areas where the constituents of concern are not expected to be present.

The sampling design will consist of a nonprobabilistic sampling (judgmental sampling) methodology backed up with a probabilistic sampling (simple random sampling) methodology. In the judgmental sampling methodology, the sampling locations are based on the investigator's experience and expert knowledge of the buildings and the site. Typically, this is useful to confirm the existence of contamination at specific locations, based on visual and historical information. Judgmental samples can be used subjectively to provide information about specific areas on the buildings. However, to confirm areas that are not suspected of containing constituents of concern, a simple random sampling methodology will be performed on those areas. With simple random sampling, all areas that are not suspected of containing constituents of concern have an equal probability of being selected, and each sampling point is selected independently from all other sample points. Sub-locations may also be sampled at equally spaced points depending on the size and homogeneity of the area.

Both laboratory analyses and field analysis will be conducted. Laboratory analysis will be conducted for parameters such as polychlorinated biphenyls, total metals, toxicity characteristic leaching procedure (TCLP) constituents, lead in paint chips, and asbestos. We anticipate that field analysis will be performed for lead in surfaces with a portable X-Ray Fluorescence (XRF) analyzer.

ATTACHMENT C

ATTACHMENT C. BUILDINGS DATA VALIDATION SUMMARY

This Data Validation report summarizes data from the laboratory analyses of Cornell-Dubilier OU-2 buildings materials samples collected by Malcolm Pirnie, Inc. during the pre-design investigation field program conducted between 4/19/06 and 6/8/06. Samples collected were analyzed by the following methods:

- Asbestos by Polarized Light Microscopy (PLM) Method 600/R-93-116 on 550 solid bulk samples;
- PCBs by USEPA Method 8082 on 50 caulking and paint chips samples;
- PCBs by USEPA Method 8082 on 96 solid concrete core and associated field Rinsates blanks;
- PCBs by USEPA Method 8082 on a single wood floor core sample;
- PAHs on a single wood floor core sample;
- TCLP Metals on 92 solid concrete cores; and
- TAL Metals on 96 solid concrete cores and associated field Rinsate blanks.

A 100 percent validation of the laboratory data was performed. Data validation activities were performed in accordance with the applicable methods using the USEPA National Functional Guidelines as guidance. The Asbestos, PCB, PAH and TCLP Metals data were found to be valid, although a small number of these data was flagged “J” as estimated for the reasons discussed below. Some of the TAL metals data on the concrete cores were qualified as rejected “R” primarily due to metals contamination found in the field Rinsate blanks. Some TAL mercury data on the concrete cores were also rejected due to high spike sample recovery. The following is a more detailed summary of the data validation by category.

Bulk Asbestos: Asbestos data were validated considering the following: Sample Integrity, Field Duplicate Results and Contract Problems/Non-compliance. All the asbestos data were found to be valid and none of the asbestos data required qualification.

PCBs on Caulking and Paint Chip Samples: The following information was used to validate all the PCB analytical results: Sample Integrity, Holding Time, Surrogate Recovery, Blank/Blank Spike (BS), Matrix Spike/Matrix Spike Duplicate (MS/MSD), Blank Contamination, Initial and Continuing Calibration, Compound Identification and Calculation Checks, Field Duplicate Results, Contract Problems/Non-compliance and Overall Assessment. All PCB data on caulking and paint chip samples were found to be valid and acceptable, but due to the Quality control (QC) problems discussed below a small amount of the data was qualified with a “J” flag due to unknown bias:

- Since the identification criteria for sample CDPCB1CPC01 exceeded the 25% difference criteria the result for Aroclor-1260 was flagged “J” unknown bias.
- The Aroclor-1248 and Aroclor-1254 results for samples CDPCB11WC01 and CDPCB11WC02 were qualified with a “J” unknown bias, since the associated field duplicate Relative Percent Difference (RPD) was greater than 20%.

PCBs on Concrete Core Samples: All the concrete core PCB data were found to be valid and acceptable. But due to the QC problems described below some results were qualified with a "J" flag.

- The surrogate recovery criteria of field blank samples CD-WP-14-FB and CD-WP-5A-FB showed low recovery and the re-analysis showed same, therefore the associated results, all of which were non-detect, were qualified estimated "J" bias low.
- The identification criteria were met, with the exception of the samples and parameters listed below, which exceeded the 25% difference criteria when comparing sample results and therefore were considered estimated "J" unknown bias:
 - Aroclor-1248 "J" unknown bias -CD-COR-8-W-04 and CD-COR-4A-F-02
 - Aroclor-1254 "J" unknown bias -CD-COR-3-4-W-03 and CD-COR-9C-W-03

PCBs on a single Wood Floor Sample: One wood floor sample CDPCBPAH0C01 was analyzed for PCBs. It was noted that the MS/MSD sample RPD for Aroclor-1016 was out of criteria. No action is taken on MS/MSD data alone and the blank spike was within criteria; therefore no further action was deemed necessary. The PCB data on the wood sample were considered to be valid and acceptable.

PAHs on a single Wood Floor Sample: The wood floor sample CDPCBPAH0C01 was also analyzed for PAHs. The following information was used to validate the analytical results: Sample Integrity, Holding Time, Surrogate Recovery, MS/MSD, Blank Contamination, Mass Spectrometer Tuning, Initial and Continuing Calibration, Internal Standards, Compound Identification and Calculation Checks, System Performance, Field Duplicate Results and Overall Assessment. The PAH data on the wood sample were found to be valid and acceptable.

TCLP Metals on Concrete Cores: The following information was used to validate the TCLP metals data: Sample Integrity, Holding Time, Initial and Continuing Calibration Verification, Initial and Continuing Calibration Blanks (ICB and CCB) and Field Blank Contamination, Interference Check Sample, Laboratory Control Samples, Laboratory Duplicate Sample Analyses, Spike Sample Analysis, ICP Serial Dilution, Field Duplicate Results, Linear Range and Overall Assessment. Two lead results were flagged with a "J".

- Lead showed an RPD of over 100% for the TCLP Metals in the field duplicate samples CD-COR-15-W-03 and CD-COR-15-DUP, therefore the lead results in both samples were qualified estimated "J" unknown bias.

TAL Metals on Concrete Cores: The following information was used to validate the TAL metals on concrete core results: Sample Integrity, Holding Time, Initial and Continuing Calibration Verification, Initial and Continuing Calibration Blanks and Field Blank Contamination, Interference Check Sample, Laboratory Control Samples, Laboratory Duplicate Sample Analyses, Spike Sample Analysis, ICP Serial Dilution, Field Duplicate Results, Linear Range and Overall Assessment. The TAL metals data were found

to be valid and acceptable except for some of the data qualified as rejected, "R". The "R" flag means that the associated value is unusable. In other words, significant data bias is evident and the reported analyte concentration is unreliable. The TAL metals data on the concrete cores which was qualified as rejected "R" were qualified primarily due to metals contamination found in the field Rinsate blanks. Some TAL mercury data on the concrete cores were also rejected due to high spike sample recovery. Due to various QC problems discussed below some analytes were also qualified with a "J" (estimated) flag.

TAL Metals Data Rejected Due to Field Rinsate Equipment Blank Contamination:

The field blank (CD-WP-5A-FB) showed barium, calcium, cobalt, iron, manganese and zinc contamination, therefore the associated sample results listed below that were less than five times the amount found in the blank were rejected:

- Co data was flagged "R" for samples: CD-COR-12-F-01, CD-COR-11-F-02, CD-COR-11-F-01, CD-COR-5-F-02, CD-COR-5A-F-02, and CD-COR-5A-F-01
- Co and Zn data were flagged "R" for sample: CD-COR-5-W-03

The field blank (CD-WP-8-FB) showed barium, beryllium, calcium, cobalt, copper, iron, manganese and zinc contamination, therefore the associated sample results listed below that were less than five times the amount found in the blank were rejected "R":

- Co, Cu, Zn data were flagged "R" for samples: CD-COR-15-W-03 and CD-COR-15-DUP
- Be, Co data were flagged "R" for sample: CD-COR-1-F-02
- Co data were flagged "R" for samples: CD-COR-15-W-04 and CD-COR-5A-W-04
- Be, Co, and Zn data were flagged "R" for samples: CD-COR-5A-W-03, CD-COR-1-W-04 and CD-COR-9C-F-02

The field blank (CD-WP-9A-W-FB) showed aluminum, calcium, cobalt, iron, lead, manganese and zinc contamination, therefore the associated sample results listed below that were less than five times the amount found in the blank were rejected "R":

- Co data were flagged "R" for samples: CD-COR-6-F-01, CD-COR-6-F-02, CD-COR-6-DUP, CD-COR-9-F-01, CD-COR-9-F-02, CD-COR-9-W-03, CD-COR-9A-F-02, CD-COR-9A-F-01, CD-COR-9A-W-03 and CD-COR-9A-W-04
- Co and Zn data were flagged "R" for sample: CD-COR-6-W-03
- Co, Pb, and Zn data were flagged "R" for sample: CD-COR-6-W-04

- Pb data was flagged “R” for sample: CD-COR-9-W-04

The field blank (CD-WP-9B-FB) showed beryllium, calcium, cobalt, copper, iron, manganese and zinc contamination, therefore the associated sample results listed below that were less than five times the amount found in the blank were rejected “R”:

- Co data were flagged “R” for samples: CD-COR-9B-F-02, CD-COR-9B-F-01, CD-COR-4A-DUP, CD-COR-4A-F-02, CD-COR-3-4-F-02, CD-COR-3-4-F-01
- Be, Co data were flagged “R” for samples: CD-COR-9B-W-03, CD-COR-9B-W-04, CD-COR-3-4-W-03, CD-COR-3-4-W-04
- The field blank (CD-WP-8-FB) showed barium, beryllium, calcium, cobalt, copper, iron, manganese and zinc contamination, therefore the associated sample results listed below that were less than five times the amount found in the blank were rejected “R”:
- Be, Co, Zn data were flagged “R” for samples: CD-COR-1A-F-01, CD-COR-1A-W-03, CD-COR-2A-W-03, CD-COR-10-F-02, CD-COR-10-F-01, CD-COR-8-F-01, CD-COR-8-W-03
- Co data was flagged “R” for sample: CD-COR-2A-F-01
- Co and Zn “R” -CD-COR-1A-F-02, CD-COR-2A-F-02 and CD-COR-2A-W-04
- Be, Co, Cu, Zn “R” - CD-COR-1A-W-04

The field blank (CD-WP-14-FB) showed aluminum, barium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, sodium and zinc contamination, therefore the associated sample results listed below that were less than five times the amount found in the blank were rejected “R”:

- Ca and Zn data were flagged “R” for samples:CD-DF-1
- Ba, Cr, Co, Cu, Fe, Pb, Mn, K, Na, and Zn data were flagged “R” for samples: CD-COR-14-F-01
- Co, Cu, Pb, K, Na, Zn data were flagged “R” for samples: CD-COR-16-W-04
- Co and Zn data were flagged “R” for samples: CD-COR-14-F-02
- Co, Na, and Zn data were flagged “R” for samples: CD-COR-15-F-02
- Co, Cu, Ni, and Zn data were flagged “R” for samples: CD-COR-15-F-01

- Co, Cu, and Zn data were flagged “R” for samples: CD-COR-18-F-02, CD-COR-16-F-02
- Co, Cu, Pb, Na, and Zn data were flagged “R” for samples: CD-COR-18-F-01
- Co, Pb, and Zn data were flagged “R” for samples: CD-COR-16-W-03
- Co, Cu, Ni, Na, and Zn data were flagged “R” for samples: CD-COR-16-F-01

The field blank (CD-WP-8-FB) showed barium, beryllium, calcium, cobalt, copper, iron, manganese and zinc contamination, therefore the associated sample results listed below that were less than five times the amount found in the blank were rejected “R”:

- Co data was flagged “R” for sample: CD-COR-9C-W-03, CD-COR-18-W-03, CD-COR-18-W-04
- Be, Co, and Zn data were flagged “R” for samples: CD-COR-8-F-02, CD-COR-2-W-04, CD-COR-9C-W-04
- Be and Co data were flagged “R” for samples: CD-COR-8-W-04, CD-COR-2-F-01, CD-COR-9C-F-02
- Co and Zn data were flagged “R” for samples: CD-COR-2-F-02, CD-COR-9C-F-01
- Be, Co, and Cu data were flagged “R” for samples: CD-COR-2-W-03
- Be, Co, Cu, and Zn data were flagged “R” for samples: CD-COR-1-W-03

Mercury Data Flagged as **Rejected** Due to High Spike Recovery: The following mercury data, which showed recovery over 200% of the spike sample and associated with positive results were flagged as rejected “R”.

- Mercury data were flagged “R” for samples: CD-COR-8-F-02, CD-COR-8-W-04, CD-COR-2-F-01, CD-COR-2-W-04, CD-COR-1-W-03, CD-COR-9C-F-01, CD-COR-9C-F-02, CD-COR-9C-W-03, CD-COR-9C-W-04, CD-COR-18-W-03, CD-COR-18-W-04

TAL Metals Data Qualified as Estimated Due to Laboratory Duplicates Precision: TAL Metals listed below showed RPD 20%, therefore the associated sample results were qualified estimated “J” unknown bias:

- Lead “J” unknown bias – CD-COR-15-W-03, CD-COR-15-DUP, CD-COR-15-W-04, CD-COR-5A-W-03, CD-COR-5A-W-04, CD-COR-1-F-02, CD-COR-1-W-04, CD-COR-9C-F-02

- Sb, As, Cu, Pb “J” unknown bias – CD-COR-6-F-01, CD-COR-6-W-03, CD-COR-6-W-04, CD-COR-6-F-02, CD-COR-6-DUP, CD-COR-8-F-01, CD-COR-9-F-01, CD-COR-9-F-02, CD-COR-9-W-03, CD-COR-9-W-04, CD-COR-9A-F-02, CD-COR-9A-F-01, CD-COR-9A-W-03, CD-COR-9A-W-04
- As, Fe, Mn “J” unknown bias – CD-COR-9B-F-02, CD-COR-9B-F-01, CD-COR-9B-W03, CD-COR-9B-W-04, CD-COR-4A-F-01, CD-COR-4A-DUP, CD-COR-4A-F-02, CD-COR-3-4-F-02, CD-COR-3-4-F-01, CD-COR-3-4-W-03, CD-COR-3-4-W-04
- Al, Cd, Ca, Pb, Mg, Mn, Ni, Se and Zn “J” unknown bias – CD-COR-1A-F-01, CD-COR-1A-W-03, CD-COR-2A-W-03, CD-COR-10-F-02, CD-COR-10-F-01, CD-COR-8-F-01, CD-COR-8-W-03, CD-COR-2A-F-01, CD-COR-1A-F-02, CD-COR-2A-F-02, CD-COR-2A-W-04, CD-COR-1A-W-04
- As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Ni, Se, V, Zn “J” unknown bias – CD-COR-14-F-01, CD-COR-14-F-02, CD-COR-15-F-02, CD-COR-15-F-01, CD-COR-18-F-02, CD-COR-18-F-01, CD-COR-16-W-03, CD-COR-16-F-02, CD-COR-16-F-01, CD-COR-16-W-04
- Cr and Mn “J” unknown bias – CD-COR-8-F-02, CD-COR-8-W-04, CD-COR-2-F-01, CD-COR-2-F-02, CD-COR-2-W-03, CD-COR-2-W-04, CD-COR-1-W-03, CD-COR-9C-F-01, CD-COR-9C-F-02, CD-COR-9C-W-03, CD-COR-9C-W-04, CD-COR-18-W-03, CD-COR-18-W-04

TAL Metals Data Flagged as Estimated Due to Spike Sample Recovery: The Spike Sample criteria for this data set have been met, with the exception of the TAL Metals listed below which showed low recovery, therefore the associated positive and non-detect results were qualified estimated “J” low bias:

- Antimony and Copper “J” low bias – CD-COR-15-W-03, CD-COR-15-DUP, CD-COR-15-W-04, CD-COR-5A-W-03, CD-COR-5A-W-04, CD-COR-1-F-02, CD-COR-1-W-04, CD-COR-9C-F-02
- As, Cu, Ag “J” low bias – CD-COR-6-F-01, CD-COR-6-W-03, CD-COR-6-W-04, CD-COR-6-F-02, CD-COR-6-DUP, CD-COR-8-F-01, CD-COR-9-F-01, CD-COR-9-F-02, CD-COR-9-W-03, CD-COR-9-W-04, CD-COR-9A-F-02, CD-COR-9A-F-01, CD-COR-9A-W-03, CD-COR-9A-W-04
- Manganese “J” low bias – CD-COR-9B-F-02, CD-COR-9B-F-01, CD-COR-9B-W03, CD-COR-9B-W-04, CD-COR-4A-F-01, CD-COR-4A-DUP, CD-COR-4A-F-02, CD-COR-3-4-F-02, CD-COR-3-4-F-01, CD-COR-3-4-W-03, CD-COR-3-4-W-04
- Sb and Cu “J” low bias – CD-COR-1A-F-01

- Ca, Pb, Mn and Zn “J” high bias- CD-COR-1A-W-03, CD-COR-2A-W-03, CD-COR-10-F-02, CD-COR-10-F-01, CD-COR-8-F-01, CD-COR-8-W-03, CD-COR-2A-F-01, CD-COR-1A-F-02, CD-COR-2A-F-02, CD-COR-2A-W-04, CD-COR-1A-W-04
- Cu “J” low bias – CD-WP-14-FB
- Sb, Cd, Cu, V, Zn “J” low bias Cr, Co, Ni “J” high bias – CD-COR-14-F-01, CD-COR-14-F-02, CD-COR-15-F-02, CD-COR-15-F-01, CD-COR-18-F-02, CD-COR-18-F-01, CD-COR-16-W-03, CD-COR-16-F-02, CD-COR-16-F-01, CD-COR-16-W-04
- Antimony “J” low bias – CD-COR-8-F-02
- Manganese “J” high bias - CD-COR-8-W-04, CD-COR-2-F-01, CD-COR-2-F-02, CD-COR-2-W-03, CD-COR-2-W-04, CD-COR-1-W-03, CD-COR-9C-F-01, CD-COR-9C-F-02, CD-COR-9C-W-03, CD-COR-9C-W-04, CD-COR-18-W-03, CD-COR-18-W-04

TAL Metals Data Flagged as Estimated Due to Field Duplicate Precision: the following data were flagged as “J” due poor to field duplicate precision:

- The field duplicates associated with this data set are CD-COR-15-W-03 and CD-COR-15-DUP. Lead showed and RPD of over 100% for the TAL Metals in the field duplicate samples, therefore the lead results in both samples were qualified estimated “J” unknown bias.
- The field duplicates associated with CD-COR-6-F-02 and CD-COR-6-DUP for cadmium, copper, iron, lead, sodium and zinc showed an RPD of over 100% for the TAL Metals in the field duplicate samples, therefore these results in both samples was qualified estimated “J” unknown bias.